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## LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interests of Lake Carriers, and to improve the character of the service rendered to the public.

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## NAVAL EQUIPMENT BUREAU REPORT.

A striking illustration of the growth of the American navy is presented in the single statement in the annual report of Rear Admiral R. B. Bradford, chief of the equipment bureau of the navy, that he spent $2,273,111 last fiscal year for 324,108 tons of coal at an average cost of $7.01 per ton. The report says that this was nearly 95,713 more tons of coal than was used during the preceding fiscal year.

Ten years ago the coal consumption was 73,000 tons-per annum. The domestic coal cost $6.20 a ton and the foreign coal, of which there were used 105,066 tons, cost $8.50 per ton.

Admiral Bradford has scattered American coal all over the world wherever suitable storage could be found. He has placed 12,000 tons at Yokohama and 5,000 tons at Pichilinque, Mexico, and he has sent large quanties to Guam and to the Philippines. He carried 9,000 tons by water from the Atlantic coast to Mare island, California, where it came into competition with English Cardiff coal. They have averaged the same in cost, viz. $9.29 a ton, but at present, owing to the scarcity of American freight vessels the best Cardiff coal is considerably cheaper at Mare island. It is recommended that two large steam 10,000-ton colliers be built to keep depots supplied in times of peace and to accompany the fleets in time of war.

Summarizing the work accomplished at various coaling stations during the year. the report takes up Cavite, and says that the bureau is about to open bids for a 45,000-ton coaling station there. Efforts have been made to obtain a site for a coaling staton at Cebu, but thus far without success. Coaling stations have been located at Port Isabella, Bassalin island and at Polloc, Mindanao.

A complete station has been established at Yokohama, Japan, and it is now fully stocked with coal. The same statement is true at Pichilinque, Mexico, where, through the courtesy of the Mexican government, our coal and colliers have been admitted to the station without port or customs of any kind. In the West Indies a little work has been done at San Juan on the coaling scale, but Admiral Bradford expresses regret that little progress has been made in securing sites for other coal depots in the West Indies. It is said to be particularly essential that some of the deep water ports of Cuba should be made available for this purpose, as the entire waters surrounding Cuba are most important in a strategic sense and supplies of coal should be near at hand. Estimates are submitted for improvement of the coaling stations at most of the Atlantic ports, including a complete modern plant at Norfolk. Admiral Bradford specifically says:

"As the department is aware, efforts are being made to establish other naval coal depots at important localities, which is deemed unwise to discuss in a report of public character.

Admiral Bradford says very little about his favorite project in a transpacific sub-marine telegraph cable, contenting himself with the statement that the bureau is now in posession of all data required so far as surveys are concerned, to lay this cable. In the same connection he renews his recommendation for a careful examination of the Pacific ocean, west of the Hawaiian islands, to locate dangers to navigation. He recomends that additional hydrographic offices be established at Manila and at Pensacola, Fla.

The report says that the subject of wireless telegraphy was followed carefully during the year, but it does not appear advisable to adopt any particular system at present, or to aquire any more apparatus that necessary for purpose of instruction. It is clear that no system as yet has passed beyond the experimental stage. Though most of the principal naval powers have adopted some form of wireless telegraphy for their ships, it is believed from the reports received that none are satisfactory. It was clearly shown during the international yacht races that the difficulties of "interference" could not be overcome with the apparatus then used.

## THE HYDROGRAPHIC OFFICE.

The Hydrographic Office, U. S. N. Bureau of Equipment, is in a very efficient condition under Commander C. C. Todd, U. S. N., and has largely increased its output. It is recommended that Manila, P. I., and Pensacola, Fla., be added to the 17 branch hydrographic offices now in existence. The report of the Secretary of the Navy adds: "The Hydrographic Office of this country is justly rated as the best in the world. It is yearly visited by hydrographers from many foreign countries. Its aids to mariners are of world-wide reputation. The time has come when it is absolutely necessary to provide reasonable accommodations for hydrographic work, or progress will cease, and the high reputation now established can no longer be maintained. The increase of the Navy demands expansion in all establishments pertaining thereto. For this reason the Bureau has submitted in its estimates sufficient funds for the construction of a new and suitable building to be devoted exclusively for the use of the Hydrographic Office.

## THE SUBSIDY BILL.

The Washington correspondent of the Cleveland Plain Dealer says: There are increasing indications that the ship subsidy bill, proposed by Senator Frye and boosted along by Senator Hanna, will meet vigorous opposition among the ranks of the republicans. It has been known for some time that trouble for the bill was brewing in the delegations from several states, among them Indiana, Wisconsin and Minnesota. To this list has been added Ohio, for representative Burton, who was rather inclined to be lukewarm in regard to the shipping bill last year, now is outspokenly against it. Mr. Burton said to-day:

"I do not know that I shall take an active part in opposition, but I do not favor the ship subsidy bill. The comparison of this measure so often made with the system of production will not bear analysis.

In the first place, a tariff brings money into the treasury; this bill takes it out. By a tariff communities can be built up within a country, a diversity of occupations obtained and the various capabilities of the people developed. You can control the industrial situation within a country, but when you seek to manage competition on the oceans, you fail.

"The situation there is controlled by different conditions and facts, notably among which is the impossibility of dealing with competition with another country or countries. The argument made that it will give benefit to American producers cannot be sustained. Freight rates will not be lower and the increase in the quantity of the shipping will not materially affect the freight situation. The benefit of the subsidy will go to the ship owners rather than to the producers."

Mr. Burton will call his committee together early in the session to begin work on a river and harbor bill.

"I anticipate that a river and harbor bill will be passed he said. "It will be a task of great difficulty to frame one which will satisfy all parts of the country, but there is a pressing demand for legislation of this kind, in view of the great increase in transportation, domestic and foreign, as well as the necessity for securing the lowest possible freight rates."

## BIG SHIPS AND ENGINES.

Railway and Locomotive Engineering very pertinently observes that the tendency now in all lines where power is used for commercial purposes, is to concentrate the power in huge machines. This is particularly apparent in electric appliances and in steamboat machinery. The building of immense ocean-going steamers has made great progress in the last few years, and it is difficult to fortell the limit. Within the month a British torpedo boat broke in two in a rough sea and carried over sixty men to a watery grave. It may be that this line of weakness may control the length of the world's great liners.

The idea of building up huge steamers is old and gave place to a practical experiment many years ago that was very costly to those who put their money into the enterprise. I. K. Brunel, a celebrated British engineer, reasoned that a big steamer could move cargo more economically than two ships of half the capacity, just as our railroad managers have found out the advantage of using large-capacity freight cars. Mr. Brunel was a man of tremendous energy and push, and he persuaded capitalists to advance the wherewithal to build the greatest vessel that had ever been put upon the stocks. The building of the vessel, which was subsequently known as the Great Eastern, was begun on an island of the river Thames in 1854 and finished in 1859. That famous ship was 680 feet long, 83 feet wide, 58 feet deep, 28 feet draught and 24,000 tons measurement. The engines developed 10,000 horse-power. That was a most enterprising experiment at a time when there were few steamers that exceeded 1,000 tons measurement. The vessel did not prove a commercial success, principally because she could not be berthed in ordinary harbors. The British companies which are experimenting with big locomotives are encountering a similar difficulty because nearly all the turntables and freight sheds still in use were built to accommodate the locomotives and cars used fifty years ago.

Although the Great Eastern was found to be too big for the requirements of her day the ocean-carrying business has developed so much in the last half century that ships of even greater capacity are now in successful use. The latest wonder in marine architecture is the Kronprinz Wilhelm, which recently arrived in New York from Germany. She is a little smaller in displacement than the Great Eastern, being 21,300 tons, but she has engines and boilers that develop 35,000 horse-power, and can push the huge vessel through the water at a rate of 26.5 miles an hour. The furnaces devour about 550 long tons of coal a day, which represents the load carried by ten of our 50-ton cars. The power exerted by the engines exceeds that which can be done by 24 of our heaviest freight locomotives.

## A MODEL BOILER HOUSE.

The interior of the boiler house at the University of Michigan, Ann Arbor, has been entirely remodeled. Twenty thousand dollars have been expended in making a complete heating system. Two new water tube boilers of the B. and W. type with a 250 H. P. capacity each and sixteen 9-inch automatic stokers of the American type, have been installed. A 130-inch fan direct-connected to the engine for giving a forced draught and one undergronud flue with a passage of 30 square feet extending half way across the boiler room into which lead two flues of 12 square feet each, have been newly constructed. These conduct the smoke from the new boilers to the main chimney. An air duct of 15 square feet conducts the air from the fan to the stokers, which carry one and one-half ounce pressure apiece. All the boilers have new lower half-fronts, which were designed and made in the University of Michigan foundry. One object of the improvement is to save coal and do away with the smoke nuisance. The casual observer may see that the latter object has been partially accomplished. Nearly seven thousand tons of coal were consumed last year, but notwithstanding the fact that the demand for steam has been greatly increased this year probably no more fuel will be needed than last year. The plans for the reconstruction were drafted by H. C. Anderson, instructor in engineering, and the installation has been superintended by Chief Engineer Thomas Hopwood.

NICARAGUA has given notice of the termination of the treaty of 1867, granting the United States authority to build a canal across that country, and also the extradition treaty of 1870.

## BUFFALO.

*Special Correspondence to The Marine Record.*

There is an easy grain blockade here now with a 1,000,000 bushels afloat and elevators filled, besides more coming in daily.

After being aground for a couple of days in the draw of the Michigan street bridge, the Plankinton was lightered and floated again on Wednesday night.

Hingston & Woods will remove their repair yard from the foot of Genesee street to Stony Point, where they have a $700,000 contract to build docks and a canal for the steel plant.

Capt. George McLeod, the well known marine inspector for Smith, Davis & Co., is very ill at his home, No. 1149 Niagara street. His friends who are legion, hope for his speedy recovery

Insurance policies expire on December 5 on vessels leaving port at, on, or after that date. Underwriters carry the risk on vessels on the lakes at that time, but any further extension must be made by private agreement.

The Independent Towing Co., of Lancaster, was incorporated at Albany last week to operate on the Great Lakes, with a capital of $50,000. The directors are E. N. McCutcheon, J. J. Boland and Margaret Lautenslager, all of Buffalo.

It is reported that clam shell ore unloading machines, patterned after those in use at Chicago, will be erected this winter on the Angeline and Mahoning and Shenango docks at Ashtabula. The installation of these machines will throw several hundred ore shovelers out of labor.

The grain blockade which has been feared for a few weeks past is now here and elevators can't handle the cargoes already afloat. A better railroad car supply and canal facilities would of course do much to release grain from the elevators, but not much can be expected from either source.

It is possible that the burned steamer City of Genoa, owned by Gilchrist, of Cleveland, will make another trip this fall. The repair work has been rushed as fast as possible and she will be ready for work next week. Her owner is a hustler and it is not likely that he will now put her into winter quarters.

The passenger steamer Puritan will be put in condition for business next spring as soon as the insurance company will pay the fire loss. Cost of repairs has been estimated at $14,500, but the underwriters want to compromise at $12,000. This hackling and begging after a loss takes place is not for the best interests of insurance companies.

The following meteorological observations are furnished by the office of the U. S. Weather Bureau, Buffalo, for the week ending Nov. 20. Prevailing wind directions during the week West; highest velocity 48 miles West on 16th. Mean temperature for the week, 33 degrees; highest temperature, 38 degrees, on 20th; lowest, 26 degrees, on 20th.

The first vessels to go into winter quarters at Tonawanda are the steamer St. Louis and barges Champion and Buckeye State. They tied up at Shepard & Morse's dock and will remain there until the opening of navigation next spring. They wintered at Marine City last winter. The barge William B. Ogden of the Weston tow is also preparing to go into winter quarters.

The notion has prevailed that freight on cargo was the velvet for boat owners; it is being found out that passengers pay their way, walk aboard, walk ashore and leave their spondoolicks. The blue ribbon of the Atlantic is only fought for on account of the passenger trade, and lake passenger boats are beginning to find out that passengers, not cargo, is wanted.

Many old lake sailors will be sorry to learn of the death of Capt. James Edgecomb. Deceased was one of the old-time captains, having served as master for many vessels during the past thirty years. He was mate of the steamer Colorado when her boilers blew up off Windmill Point in 1883. Failing health forced the old captain to retire and remain ashore during the past eight years.

Now it is the dredgemen that are on a strike. Messrs. Hingston & Woods are being proceeded against. It appears that one of the men had put a claim in to the firm for two days' pay to which he claimed to be entitled. He did not receive the money, and reported the matter to his organization. The result was that the men on a barge attached to a dredger, being operated at the foot of Main street, quit work, as well as the crew of another Hingston & Woods barge at Stony Point. It is expected that the difference will be settled with the union and the workman granted his claim.

Several of the big steamers turned out of lake shipyards recently are classed in the November supplement of Inland Lloyds register. The list includes the Chicago, owned by the Western Transit Company, Buffalo, 3,195 tons and valued at $240,000; Christopher, Milwaukee Tugboat line, 4,250 tons, $235,000; F. T. Heffelfinger, Peavey Steamship Company, Duluth, 4,897 tons, $270,000; Hugamo, Morley, and others, Detroit, $180,000; William S. Mack, Mrs. William S. Mack, Cleveland, 3,720 tons, $295,000; Henry Steinbrenner and others, Cleveland, 4,719 tons, $260,000; F. B. Wells, Peavey Steamship Company, Duluth, 4,897 tons, $270,000.

The Lake Erie Boiler Works, Richard Hammond, proprietor, have just completed and delivered at the Morse Iron Works & Dry Dock Co., in South Brooklyn, three double end marine boilers of the Scotch type, for the U. S. Army transprt Crook. Each boiler is 14 ft. in diameter and 20 ft. long, and has been built for a working pressure of 120 lbs. to the sq. in. The boiler company have also delivered four boilers to the Southern Pacific Co., of New Orleans. Each of these boilers is 11½ ft. long by 11 ft. in diameter, and 185 lbs. working pressure. The company's shops are filled with orders from all parts of the country. The Lake Erie Boiler Works has long borne the reputation of being the best equipped plant in America for the manufacture of marine and stationary boilers, and the products of this famous works are to be found in our best steamers everywhere.

## CHICAGO.

*Special Correspondence to The Marine Record.*

Buffalo sent in nearly 40,000 tons of coal last week at a 70-cent freight rate to lower docks and 80 cents up the South Branch. It seems that more bituminous ought to come this way.

The tug Champion left Grand Haven on Monday for Buffalo, with the steel dredge recently built by Johnson Bros. for the Buffalo Dredging Company. The dredge is the largest on the lakes.

C. D. Howard, agent for the Canada-Atlantic Transit Co. at Milwaukee, died on Tuesday. Mr. Howard stood high in vessel circles and his death has caused general regret among men doing business with him in the past.

Insurance expires Dec. 5 at noon. Any boat leaving port previous to that hour is entitled to complete the trip. The majority of owners of insured boats figure the last trip as near the 5th as possible, and in this manner the actual season of navigation is frequently extended several days.

The Iroquois Iron Co. has laid up its steamers Fred Mercur and H. E. Packer for the winter. These are the first large boats to go into winter quarters this fall. The two boats have been running all summer between Escanaba and the iron company's dock, and have finished their work for the year.

The Canada-Atlantic Railway company finds its 1,500,000 bushel elevator at Depot Harbor insufficient for its traffic between Duluth and Chicago and that point, and has decided to build a 2,000,000 bushel annex. This route is getting a liberal share of the grain of the northwest and its business is growing every year.

Marine men are already preparing petitions to their Congressmen asking for their aid in having large appropriations incorporated in the next river and harbor bill for work on the east shore of Lake Michigan. The situation is worse than it has been for some time, owing to the fact that not so much work was done this year because of the failure of the last river and harbor bill to pass.

With a couple of the best lodges of lake engineers in with the Federation of Labor, and others to join, the lake vessels can be tied up at any time that owners try to impose on any labor or skill connected with shipping. The chief engineer of a line boat assured me yesterday that there would be something doing this winter and that they would not be trod upon any longer by owners growing rich out of their labor.

The port of Holland has been abandoned by the Graham & Morton boats for the rest of the season. Soundings show only nine feet of water, where sixteen feet was dredged this summer. In St. Joseph harbor the sand is piling in until there is only fourteen feet where there was thirty feet last summer. The steamer Puritan will be laid up at the end of the week and the Soo City will run two weeks longer.

The Chicago shipyards have built a fleet of ocean going ships that are now on the Atlantic. There is said to be a number of senators and representatives in favor of the scheme to make it possible to build government ships on the lakes. The proposed ship subsidy bill involves the claim that they need government contracts to enable them to carry the force and the machinery to succeed in constructing ships for freight and passenger business. The president is said to take a favorable view of the matter, but does not think this is the right time to urge the change on Great Britain. When the new Hay-Pauncefote treaty is agreed on and confirmed it will then be in order, he thinks, to take up the negotiations of another agreement. Senator Hanna, who is interested in large manufacturing plants along the lakes, is pressing the matter and the interests of Chicago are insistent on the right to bid on ships that are to be built for the navy in the next few years.

## CLEVELAND.

*Special Correspondence to The Marine Record.*

Chartering is slow for this time of the season. Rates are at 2½ cents on wheat and a ¼ cent less on corn to Buffalo.

Capt. Charles Hinslea has been appointed to the command of the steamer C. B. Lockwood, vice Capt. J. C. Dobson resigned.

Harbormaster Lynch notified all parties that the Central Viaduct was in some way damaged and could not be swung for possibly a day or two. Every effort is being made to repair the break.

It is now evident that considerable coal will come forward next winter by rail. From what I learn the supply of bituminous is less than in previous seasons, but the stores of anthracite are fairly up to the usual.

As regards lake service, I find that engineers are the only men in question these times. Masters and pilots are to be had by the bushel, and at any old time of asking, but every consideration must be given the engine drivers.

The announcement is made that E. P. Lannahan, an insurance adjuster of Chicago, has decided to make Cleveland his future home and will move here at once. He will be connected with the office of Capt. W. W. Brown, which is located in the Williamson building.

B. W. Bartlett, who was a member of the local life saving crew, died at his home at Pulaski, N. Y., Monday, of typhoid fever. He was only sick a few days and did not leave the life saving station until the latter part of last week. He was one of the best men in the service.

The members of the executive commitee of the American Ship Building Co. and the Great Lakes Towing Co., met here on Wednesday, but no business of importance was transacted. Mr. W. L. Brown, of Chicago, president of the American Ship Building Co., and Capt. Edward Smith of Buffalo, and Mr. L. M. Bowers, of Binghamton, N. Y., who are interested in both companies, were here.

The new steel steamer Frank W. Osborne, building for J. C. Gilchrist and others, was launched from the Lorain yards of the American Ship Building Co., on Saturday. As she slid into No. 2 slip she was christened by Miss Helen Miller, of Cleveland. The second Gilchrist steamer will be launched in two weeks, and will be christened Frank W. Hart after a member of the Gilchrist company.

The local idea is to tax the country to furnish funds towards building a boulevard across the entire city front. Senator Hanna is opposed to private steals of this sort, well knowing that no harbor of refuge can be made by an extension of a government breakwater. It is a shame that Congressman Burton should, with the assistance of a Chamber of Commerce committee, endeavor to influence the district engineer to recommend so infamous a project involving $3,000,000.

The Cleveland Pneumatic Tool Co., manufacturers of pneumatic tools and appliances, have issued their catalogue "D" showing their line of pneumatic hammers, drills, etc. These tools are of the highest grade and are attracting the attention of all those who wish to keep up with the advancing tendencies of the times in mechanical lines. This catalogue is handsomely illustrated, printed on fine paper, and is an altogether creditable presentation of the company's line of manufactures.

The following meteorological observations are furnished by the office of the U. S. Weather Bureau, Cleveland, for the week ending November 20th: Prevailing wind directions for the week, southwest; highest velocity, 60 miles from west to the 14th. Mean temperature for the week, 35; highest temperature, 40 on the 18th; lowest 29 on the 16th; sunrise and sunset data computed for local time, Nov. 22nd, sun rises, 6:58; sets, 4:34; Nov. 25th, sun rises, 7:01; sets, 4:32; Nov. 28th, sun rises, 7:05; sets, 4:31.

George Uhler, the president of the lake and coast marine engineers' society, warns lake engineers against entering into any contract for work next season. Bringing this to the attention of one of our most conservative and wide-minded vessel owners he said that Uhler was quite right, wages should rule from month to month, or even on each trip. The men on the lakes are only fitted to drive their own engines, while men from the coast can work either on salt or fresh water, and it was simply a question of supply and demand, so that there was no reason for making any sort of season wage contracts.

At the regular meeting of the Cleveland Naval Reserves, held on Monday night, the great majority of the members of the battalion signified their desire to enter the national naval reserve, which will probably be authorized by Congress this winter. None of the members were opposed to the plan, although it is understood that some will sever their connection with the battalion when it enters the federal service. Capt. Wirt, Lieuts. Doyal and Semon, Ensigns Harris and Revere, and Assistant Surgeon Glass signified their intention of joining the national reserves. Capt. Wirt will report to the adjutant general of the state that he can promise 150 men.

The local officers of the Pittsburg Steamship Co. received orders to lay up the two barges Roebling and Manila. The former is unloading in Conneaut and as soon as discharged will be laid up. The Manila is to winter in Lorain. The order is an indication that the season for the larger sized

barges is drawing to a close. Some of the smaller boats will undoubtedly be kept on much longer, as they can handle the cargoes to better advantage. A portion of the fleet will be placed in the grain trade although every pound of iron ore that they can carry will be brought down. The big company seems to want the boats to earn money and won't cut rates to the detriment of other owners and the general trade although it is in a position to do so if it wanted to.

It has been decided to put off until next spring the work of moving to the seaboard the two large steamers building at the Cleveland yards of the American Ship Building Co. for trans-Atlantic trade. It was expected that one of the vessels would be taken about this time in two parts to Montreal, there to be put together, and that the second vessel would follow early next spring, but unavoidable delays have compelled the builders to put off the completion of both ships until the opening of navigation next year. These are the vessels that are building for interests represented by Charles E. and W. F. Peck, of New York. They are to carry about 7,000 tons, and are to be suited for trade in all parts of the world. These steamers will be classed at Lloyds, and are in every way the peers of any.

The Elwell-Parker Electric Co., manufacturers of standard and special electric machinery and apparatus, reports the following recent contracts: Two 200-k. w. direct connected engine generators for the Brown Hoisting Machine Co.'s new plant; five marine generating sets, a continuation of a previous order of eight compound marine generating sets of 200 lights capacity each, for the American Ship Building Co., Cleveland; one 150-k. w. direct connected engine generator for the Northern Engineering Co.; a large and elaborate switchboard, also two 75-h. p. and two 50-h. p. hoisting motors for the Brown Hoisting Machine Co.; one 150-k. w. belted generator with a dozen motors of various sizes for the Cleveland Bag Factory, and two special converter charging sets for automobile work to the order of the Baker Motor Vechicle Co., of Cleveland. The Elwell Parker Co. is one of the growing Ohio industries managed by capable men of capital

There is still considerable talk of a combination being formed during the coming winter among the lumber carriers, but as yet the Lumber Carriers' Association, as a body, has taken no action. The Detroit Tribune says: Last spring the lumber carriers got together and agreed to hold together on the rate question, but when a 25-cent advance was ordered on Sept. 1, some of the members kicked, and the rate was not put into effect until some twenty days later. A local dealer says: "It is not so much the wages we are forced to pay but when we load we never know what it will cost to unload, and, as a result rates are demoralized. What should be done is to compel the shippers and consignees to load and unload the lumber, and pay the boat simply the freight. Another thing in time of trouble, a master of a boat can get no police protection, whereas, if a local dealer was handling the stevedores, he could call on the authorities and demand protection."

Labor saving devices are what capitalists are after and every time a strike occurs efforts are being put forward to improve mechanical appliances. I now learn that G. A. Hulett, the inventor of the clamshell, or automatic unloading machine, said that his firm has contracted with the Pittsburg, Youngstown & Ashtabula Railroad Co. for a small clamshell machine to be placed on the P., Y. & A. dock at Ashtabula. It is also said that the P. & C. Dock Co., Conneaut, will increase the number of the Hulett unloaders next summer. Fewer men have been employed than last year, though the ore receipts have been half a million more. The men say that they will insist on a higher wage scale in the spring, as this has been a poor year for them on account of the clamshells. There is little use in the men forming unions in certain classes of labor when the labor is being done away with and it is likely that this feature will prevail more in the future than the past.

The suggestion which George Uhler, president of the Marine Engineers' Beneficial Association, made to the engineers, that they refrain from accepting the terms of the Pittsburg Steamship Co. has been discussed with apparent interest. In the office of the Pittsburg company it was said that the warning issued was a little premature, as the company has made no proposal to the engineers, and does not intend to do so before the end of the season. All arrangements for next year will be made as soon as possible, that the details may form the basis of computations, but it is not proposed to anticipate next year's business before this season is over. In marine circles it was thought that the caution, would augur well for the future peace of the lake industry. Should the question be forced to an issue, however, all efforts will be made to bring about an amicable settlement as soon as possible, and so that work would proceed on fair and square terms, in so far as labor and capital is concerned.

The Detroit & Cleveland Navigation Company has sent out the following notice to its connections giving the dates at which the various divisions will end the season of navigation: "This company will discontinue to receive freight for shipment via its different divisions, as follows: The Lake Erie division, between Detroit and Cleveland, will discontinue to receive freight at Detroit, for shipment to Cleveland and points beyond, with close of day's business, Monday, December 9, and at Cleveland, for Detroit and points beyond, with close of day's business, Tuesday, December 10; and on the Mackinac division, between Toledo and St. Ignace, at Detroit and Toledo, for shipment to St. Ignace and intermediate ports, with close of day's business, Monday, November 25. On the Cleveland and Toledo line, at Cleveland, for shipment to Toledo and points beyond, with close of day's business, Thursday, November 28; and at Toledo, for shipment to Cleveland and points beyond, with close of day's business, Wednesday, November 27."

Major Kingman, Corps of Engineers, U. S. A., in charge of the conservancy and improvement of rivers and harbors within this district, makes it very plain that his action in framing a set of rules by which the bridges over the Cuyahoga river are to be governed, is not intended to give the boat lines a complete monopoly of that channel nor to deprive them of any rights they have by seniority of possession. His effort is nothing more than to define the rights of both the railroads and of the boats, that the best possible results may come. It is the intention to conform as far as possible to the rules adopted by the city in case such rules are good and definite. A system of signals for the various bridges is a possibility. The plan will be suggested of naming each of the bridges, or of designating it by a letter. In case this is done "A" bridge will have as its signal the telegraphic characters of the equivalent in whistle blasts to a dot and a dash or one short and one long whistle. Bridge "B" under the same rule would be signaled by one long and two short blasts, and so on through the entire code. This scheme, while elaborate, it is thought, will prove effective.

## DULUTH-SUPERIOR.

*Special Correspondence to The Marine Record:*

We received about 33,000 tons of coal from Buffalo last week, and it would now seem as if the hard coal market would about fill the supply, but we are short on anthracite.

Captain Kidd, after examining the ground where the Smeaton is stranded, says that she can be floated again. Capt. Kidd is generally correct in his judgment of strandings of this sort.

We have had lots of tonnage here this week and some detention has been experienced on account of the bunching of craft. Two Harbors caught the rush also, and unless there is brisk discharging some of the boats will now be on their last trip to the head of the lakes.

Captain Charles M. York, local inspector of hulls at Marquette, is very low with pneumonia, and is not expected to live. Supervising Inspector Westcott of the steamboat inspection service stationed at Detroit was sent the notification from the boiler inspector at Marquette.

Agents of the new coal trust have been in Washburn, and rumor has it that they are negotiating for the control of the Northwestern Fuel Company, whose principal docks and sheds are located there. Most of the large companies in the West have gone into the trust, and the Northwestern is one of the largest interests that has stood out.

A number of lumber camps in the vicinity of Ashland have been closed down by order of the government and nearly 1,000 men are thrown out of employment. The cause of the action is presumed to be fear of a smallpox outbreak. The matter is a serious blow to the lumber industry, owing to the fact that the logging season has just opened.

There is no question but that timber cutting this winter will make the record. Messrs. Mitchell & McClure, A. A. Bigelow & Co., C. B. Simpson, the Keystone Lumber Co., the Red Cliff Lumber Co., the Tower Lumber Co., the Nester Estate and Merrill & Ring, also H. J. Wachsmuth & Co., of Bayfield, and a dozen of others are all working on log supplies for lumber next summer.

It is not believed the big steel tow barge Smeaton can be pulled off the beach at Rock river point by the tugs Schenck and Boscobel from Marquette. The chances of getting the big boat afloat this fall are said to be dubious by the men who have the work in charge. She is laying away half a mile in shoal water, and it will be necessary to dredge a channel for her to come out into deep water again.

The season just about to close has been a satisfactory one to lumbermen and they will witness the cessation of shipments by water with an expression of content. Everything has been especially favorable this season, success attending every movement of stocks. Next season, the lumbermen say, will be even greater than the one just now drawing to a close. Indications, they say, point to the greatest activity in the lumber market that the head of the lake markets have realized.

Messrs. Hubbell and Thomas A. Merritt are exploring for iron ore on the lands of the Mesaba Iron Co. on the east Mesaba, and it is reported that they have shown up more ore there than any other prospectors. This property consists of about 13,000 acres, and the Oliver Iron Mining Co. at one time held an option for a lease on it, but after a certain amount of exploration they abandoned it. It is stated that the prospectors sold out for $125,000 to an eastern furnace firm, and that there is not less than 5,000,000 tons of ore in sight on the claim.

The government has been spending a large amount of money here every year under the continuous contract system and some people are beginning to wonder what is to be done in the way of harbor improvements after 1902. It is expected that if the growth of lake commerce continues in the next decade as it has in the past, there will be plenty of work for the government to do. If the continuous contract system had not been adopted when it was it would now be very difficult, if not impossible, for the present commerce of the harbor to be handled in the big boats now engaged in the Lake Superior trade.

Reports from Marquette state that all attempts to release that stranded barge John Smeaton, which lies on the rocks at Au Train, have proved fruitless and the wrecking tugs Favorite, Boscobel, and Schenck returned to Marquette without having accomplished anything. The Smeaton lies on a rocky bottom and the tugs were unable to move her. Four compartments are full of water and the bottom is evidently badly broken. Captain Kidd, wrecking master for the steel trust, has not decided on the course he will pursue in further wrecking work. It is quite certain that if Captain Kidd abandons the Smeaton no one on the chain of lakes will be able to do anything with her afterwards.

Lumber shippers complain that this has been the worst fall for getting despatch out of boats in all their experience at the head of the lakes. The cause assigned for this condition is the prevalence of westerly winds. But it is expected that the aggregate shipments of lumber from the head of the lakes and Ashland will be fully up to last season and the season before. The head of the lakes probably will show a record of between 425,000,000 and 430,000,000 feet, or about the same as for each of the past two seasons. Unless the next two weeks are more favorable than may reasonably be expected, there will be considerable sold lumber which will fail to go forward this season.

Capt. D. P. Wright of the steamer Zenith City, Capt. A. McArthur of the A. D. Thompson, and Capt. John Ward of the Sir William Siemens, united in making a signed complaint against the light-house keeper of La Pointe. The Zenith City passed the light-house at 8 a. m. Sunday morning, November 3, the A. D. Thompson at 9:15 a. m. During all this time a hard westerly snow storm raged, the storm being so dense that the captains could not see a thousand feet ahead, and during this time no fog whistle was blown, as is required by law under such conditions. On the other hand the special investigation may show whether the vessels were in the zone of sound or otherwise. It is certain that an immediate transfer of light-keepers will be made if the evidence shows that the fog signal has not been in action, providing, of course, that there was no mechanical defect or breakdown.

Congressman Jenkins will renew his efforts at the coming session of Congress to have Port Wing made a harbor of refuge. An appropriation for this purpose has been recommended by the Secretary of War, and was incorporated in the river and harbors bill. An examination and survey of the harbor was made under the direction of Maj. Sears two years ago, and in his report he favored the harbor of refuge plan, which has been incorporated into a bill by Congressman Jenkins. It is estimated that the work will cost less than $60,000. Port Wing is on the south shore of Lake Superior, about midway between Ashland and Duluth, and a sheltering harbor would provide safety from storms for all boats caught out in Lake Superior in the vicinity going either up or down the lake. Maj. Sears recommended a plan for the construction at the entrance, of two parallel piers 200 feet apart and 800 feet long, and the construction at the inner end of the east pier of a square return pile revetment, and the dredging of a channel 150 feet wide and 15 feet deep to extend 500 feet up a slough that exists at the end of the proposed piers. The port can be very easily converted into a refuge that will hold the whole Lake Superior fleet. Port Wing is the northermost town in Bayfield county.

## PORT ARTHUR.

*Special Correspondence to The Marine Record:*

The question of prolonging the season of navigation on Lake Superior is very simple, so far as Port Arthur is concerned. For twenty years, and without any artificial methods, steamers have been trading between here and Duluth, and ordinary fishing tugs have done business on the bay until Christmas.

The trouble will be to keep open the Kaministiquia river. At Fort William, in 1896, three of the largest steamers on the lakes were frozen in there about the end of November, in spite of the efforts of two tugs to break the ice. The trouble with the Kaministiquia is not in breaking the ice, which is an easy feat, but in the river not having sufficient current at its mouth to make the ice move out when broken, and the cakes freeze together until they are so thick they cannot be broken.

The Canadian Pacific can still handle an immense quantity of wheat through their Port Arthur elevator, which is always clear of ice until very late. The St. Mary's river can easily be kept open until Dec. 15, if the government will engage one of the Mackinac icebreakers. The cost would be small compared to the saving in interest and charges on several million bushels of wheat. Further, if the government would employ an icebreaker in the spring, navigation could be opened here by April 1, which would still further relieve the congestion.

All shovelers and engineers on the docks of the Lorain Steel company have been laid off, and the shovelers were notified that their services would not be required next season. This is taken as an indication that the dock will hereafter be worked by non-union men.

## REPORT OF THE SECRETARY OF THE NAVY.

Substantial increases of the personnel and material of the navy are recommended by Secretary Long in his annual report to the President.

In the judgment of the secretary the grade of Vice-Admiral should be revived. The number of lieutenants should be increased from 300 to 350 and the limit of the number of the junior lieutenants and ensign should be made 600 There should be increase in the construction and engineer corps and the enlisted force of the navy should be augumented by 3,000 and the marine corps by 750 men.

In the matter of material the Secretary says that a larger increase than usual is desired in view of the fact that none was made last year.

He therefore recommends the authorization of the construction of three first-class battleships, two first-class armored cruisers, three gun boats, each of about 10,000 tons displacement, three gun boats, each of about 200 tons displacement, for insular service, three picket boats each of about 650 tons displacement, three steel training ships, each of about 2,000 tons displacement, one collier of 15,000 tons displacement, and four tugs.

The general board recommended the additional construction of four battleships, two armored cruisers four picket vessels, eighteen gunboats, six training ships and one collier.

The board also recommended the increase of the enlisted personnel, incorporated in his report by Secretary Long, and an increase of fifty persons in the number of naval cadets now allowed by law in order to provide for the necessary increase of officers.

The board of construcion submitted a programme contemplating the construction of three battleships, two armored cruisers, eighteen gunboats of 1,200,000 and 200 tons, two colliers, one repair ship, six training ships, four picket boats and four tugs. This is the secretary's report.

As a feature of the increased personnel plan the secretary recommends a National naval reserve, and in his report says:

"I have again to call attention to the pressing need of a national naval reserve force from which to draw for sea service immediately upon an outbreak of war. This subject has received attention in previous reports, and recommendations have been made for the enrollment and organization of such a national body, to be under the general direction of the Navy Department and subject to the call of the Chief Executive in times of national emergency.

"The results of the Spanish-American war were such as to assure everyone having knowledge of naval matters, that steps should at once be taken to meet the one certain and positive requirement which will face the nation upon an outbreak of war—the immediate necessity at that exigent time, if it comes, of a large increase in the men of the Navy from an existing reserve—an increase which must, in the main, be made from the seafaring class, who, having acquired the habit of the sea, are at home on the water. There is no better way of insuring such a reserve than by the measure now urged.

"Our pressing need is for such a reserve—a body to go to the front on board ship at once upon the outbreak of war, or when it is imminent.

"Next to this will come the defense of the coast, and for such purpose the naval militia will be essential.

"I see reason for both organizations, and heretofore done all possible to aid the one now exising—the naval militia, and to convince Congress of the necessity for the authorization of the other—the national naval reserve.

The General Board recommends the following increase of the navy:

Four first-class battleships.

Two first-class armored cruisers.

Four picket vessels of about 650 tons trial displacement, with a sea speed of 15 knots, with twin screws, carrying a battery of four 6-pounder and two Colt's guns, and a complement of 60 officers and men.

Six sheathed and coppered seagoing gunboats of about 1,000 tons trial displacement, with moderate sail power, similar to the Annapolis class.

Six light-draft, steel gunboats of about 200 tons trial displacement, for insular service in the Philippines.

Six light-draft, steel gunboats of about 200 tons trial displacement, not to exced 6 feet draft, for insular service in the Philippines.

Six steel sailing training ships of about 2,000 tons trial displacement.

One collier of 10,000 tons cargo capacity and a sea speed of 12 knots.

Three thousand enlisted men, in order that they may be enlisted and drilled in preparation for the completion of the ships.

Seven hundred and fifty marines. (This number needed for duty on board ship, and does no include the necessary garrison for posts at home and in our insular possessions.)

An increase of 50 per cent. in the number of Naval Cadets now allowed by law, in order to provide for the increase of officers needed for the ships recommended above.

The Board of Construction recommend:

Three seagoing battleships of about 16,000 tons trial displacement.

Two armored cruisers of about 14,000 tons trial displacement.

Six gunboats of about 1,200 tons trial displacement.

Six gunboats of about 600 tons trial displacement.

Six gunboats of about 200 tons trial displacement.

Two colliers of about 15,000 tons trial displacement.

One repair ship of about 7,500 tons trial displacement.

Six training ships of about 2,000 tons trial displacement.

Four picket boats of about 650 tons trial displacement.

Four tugboats.

All the vessels thus recommended are desirable in the prospective and harmonious development of our Naval force. A larger increase than usual is also desirable in view of the fact that none was made last year. Some of the vessels above recommended, however, can better than others be omitted for the present from the list and await appropriation hereafter. Among these are the gunboats of 600 tons displacement, in case the picket boats of similar dimensions are authorized: also the repair ship and a portion of each of the other classes of smaller war vessels. The Department therefore recommends:

Three first-class battleships.

Two first-class armored cruisers.

Three gunboats, each of about 200 tons trial displacement.

Three gunboats, each of about 200 tons trial displacement, for insular service.

Three picket boats, each of about 650 tons trial displacement.

Three steel sailing training ships, each of about 2,000 tons trial displacement.

One collier of about 15,000 tons trial displacement.

Four tugboats.

The Department will submit to Congress in December next, as directed by the Naval Appropriation Bill, a general description of two seagoing battleships and two armored cruisers, according to which the battleships and cruisers above recommended should be built if appropriation is made therefor.

## WHY THE SCOTCH BOILER STILL ENDURES.

To the much maligned multitubular marine or Scotch boiler we owe the adoption of the multiple-expansion engine of to-day. It has received many hard names from its detractors. It has even been designated a tank, but it still holds its own in the mercantile marine, is practically universal, and does not appear to have a rival in the particular sphere in which it is so extensively used. The water-tube boiler is still in the future, so far as the tramp steamer is concerned, and it will take a good deal of successful application before it will suppersede the well-tried favorite In certain large and first-class lines, where the engineers are engaged in a fixed trade and grow old in service, the use of water-tube boilers may be admissible; but they require delicate handling and a continuity of experience which, unfortunately, are not always obtainable in the general run of steamers in the mercantile marine. There the leaven of the old saying that "there are more ships than parish churches" still tends frequently to changes in the engine room for small and inconsiderable reasons which are totally inconsistent with the successful management of the delicate organization of improved water-tube boilers of the modern type.

For the above and many other obvious reasons the general use of a boiler with which a certain amount of liberties can be taken is a necessity. As one of the reasons may be cited the difficulty often found in inducing those in charge to make an intelligent use of the evaporator. The aggregation of factors in favor of the retention of the boiler of the present day cannot, therefore, be ignored by the general body of ship owners. They have to work against ever increasing competition at home and abroad, are obliged to use what will give them reasonably economical results, both in first cost and upkeep, and at the same time protect themselves, as far as possible, from ignorant or incompetent men.

It is not to be understood from the foregoing that the water-tube boiler is in any way condemned or even disparaged. The fact is simply that it is considered too delicate for the rough handling to which it would, in all likelihood, be subjected, and that its proper sphere is in the regular lines indicated above and in the Navy, where its general use has been found to be successful.—J. F. Walliker, in Cassier's Magazine for November.

## STATEMENT OF THE VISIBLE SUPPLY OF GRAIN.

As compiled by George F. Stone, Secretary Chicago Board of Trade, November 16.

| Cities Where Stored. | Wheat. Bushels. | Corn. Bushels. | Oats. Bushels. | Rye. Bushels. | Barley Bushels. |
|---|---|---|---|---|---|
| Buffalo | 2 690,000 | 1,305.000 | 714,000 | 11,000 | 668,000 |
| Chicago | 5,863,000 | 6,629,000 | 1,249,000 | 876,000 | 21,000 |
| Detroit | 652.000 | 286,000 | 23,000 | 136,000 | 28,000 |
| Duluth | 6,732.000 | 485,000 | 328,000 | 314.000 | 680,000 |
| Fort William, Ont. | 1,826.000 | ..... | ..... | ..... | ..... |
| Milwaukee | 176 000 | 120,000 | 567,000 | 44,000 | 212,000 |
| Port Arthur, Ont. | 225.000 | ..... | ..... | ..... | ..... |
| Toledo | 506,000 | 423,000 | 991,000 | 371,000 | 9,000 |
| Toronto | 39.000 | ..... | ..... | ..... | 5,000 |
| On Canals | 17,000 | 103.000 | 482,000 | ..... | 238.000 |
| On Lakes | 2,030,000 | 589,000 | 119,000 | ..... | 316,000 |
| On Miss. River | ..... | ..... | ..... | ..... | ..... |
| **Grand Total** | 45,677,000 | 12,156,000 | 6,860,000 | 2,239,000 | 2,628,000 |
| **Corresponding Date, 1900** | 62,361,000 | 8,428,000 | 12,832,000 | 1,371,000 | 3,286,000 |
| **Increase for week** | 3,718,000 | ..... | ..... | 107,000 | ..... |
| **Decrease " " "** | ..... | 485,000 | 930 000 | ..... | 61,000 |

While the stock of grain at lake ports only is here given, the total shows the figures for the entire country except the Pacific Slope.

## STABILITY OF A LIGHTSHIP.

The French Light-House Department has within the last few years inaugurated a new departure in lightship construction. In the first place, it was found that the period of oscillation of the waves, which materially affects the stability of a lightship, is fairly constant at each site of anchorage. Endeavors were constantly made, says Engineering, to diminish the amplitude of oscillation of lightships: 1. By eliminating synchronism between the period of oscillation of the lightship and that of the waves acting upon it. 2. By reducing the rolling produced by the waves, by the addition of side keels to the vessels. This was done in 1890 and 1891 on the Dyck and Ruytingen lightships, of 290 and 338 tons displacement respectively. The period of roll of these lightships has been prolonged to 4 seconds, whereas the period of oscillation of the waves at the site is 2½ seconds. The period of 4 seconds has been arrived at by reducing the leverage of the meta-center in cross-section to less than 0.8 meter (2.624 feet), and also by increasing the transverse movement of inertia by placing pigiron ballast as far distant as possible from the longitudinal axis of the ship. The reduction or rapid cessation of the oscillations is produced by adding three keels to the vessel, the central keel being one meter (3.28 feet) deep, and the side keels 0.75 meter (2.46 feet) deep. The increase of stability thereby gained is very marked. It has been still further increased by designing the other parts of the ship so that the waves have less effect upon it. and so that a greater force is required to incline the ship at a given angle than was necessary with former types of lightships this has been obtained by building recent lightships with a reduced section at the water line, and with a lower center of gravity, the displacement and periods of roll remaining the same. The draught of the vessel has consequently been very much increased; and the ballast consists of pieces of cast iron attached to the keel outside the vessel.

## FOR AMERICAN SHIPS.

At the meeting of southern cotton shippers held in Atlanta, Ga. last week, United States Senator John L. McLaurin of South Carolina made a plea for ship subsidies, in the course of which he said:

"We must not imagine that American capital is dependent upon national legislation in order to make ship owning pay. We have ample evidence of large American investments in foreign built ships manned and operated by foreigners in our foreign trade. However much our people may have invested in foreign built ships, they are unavailable under international law when at war as naval auxiliaries.

"Another thing we should remember: These very ships and the men employed on board of them may be turned against the United States in the event of our becoming involved in war with the nation whose flag they fly.

"The object of extending government aid to the up building of our merchant marine is to secure adequate protection for the Nation upon the sea and the mere fact that the investment has been made attractive to American capital is an incident of the transaction.

"We do not want to see the isthmian canal become merely a foreign highway of commerec," said the Senator. "We do not want our millions expended merely to become a bounty to foreign shipping. It should be an American highway and we should so develop our merchant marine that with the opening of this great canal our own flag shall predominate at the masthead of a majority of the ships that it accommodates."

Action for Loss of Cargo—Right of Insurer to Maintain.—Where a marine insurer recognizes the validity of an oral agreement with the holder of an open policy that it should be held to cover all grain shipped by the insured, whether reported before or after loading, and pays a loss arising from the sinking of a lighter employed by a ship in loading grain of the insured, it is subrogated to the shipper's right of action against the carrier to recover for the loss, and it is no defense to such action that it had not been notified of the risk nor received the premium therefor at the time of the loss, and might have successfully resisted payment under the terms of its policy. Nord-Deutscher Lloyd vs. President, etc., of Insurance Co. of North America, 110 Fed. Rep. (U. S.) 420.

Collision—Defense of Inevitable Accident—Evidence Considered.—A collision between a steamship and a vessel moored to a wharf was due to the fault of the master of the steamship, and not to inevitable accident, because of a latent defect in the apparatus by which signals were communicated from the master to the engineer, where, although such defect existed, it was of such a character that the master, in the exercise of proper care, should have discovered it at once on attempting to ring the engineer's bell, and should have known that his attempted signal was not given. but, assuming it to have been received by the engineer, he gave further orders, which directly brought about the collision. The Homer, 109 Fed. Rep. (U. S.) 572.

"Graphite" for October, published by the Joseph Dixon Crucible Company, Jersey City, N. J. is filled with things of interest to all who use graphite in any manner whatever. It is published for the purpose of establishing a better understanding in regard to the different forms of graphite and their respective uses.

## THE PRINCIPAL CAUSES OF STRANDING.

Stress of weather excepted, strandings are always due to errors in position, caused by the use of a defective log, of defective astronomical methods, and of defective methods for finding position by soundings.

The logs in use are the common log, and the patent log, both floating on the water and partaking of set and drift of currents. Floating logs give only the distance run on the water and not the distance over the ground. The position by floating log is always so much in error as the current sets during the run, involving errors in courses as well as in distances.

The invariable basis of all directions is the true or astronomical meridian laid down in the chart. To transfer courses by the ship's compass to the chart, four course corrections are required, namely, 1, deviation; 2, leeway; 3, current; 4, variation; of which only the last one is known and generally given in the chart; the other three depend on observations at the beginning of, and during the voyage. Deviation is generally ascertained by astronomical observation; leeway equals the angle which the wake makes with the fore and aft line of the ship; the correction for leeway and current combined equals the angle which the horizontal projection of the ground log-line makes with the fore and aft line of the ship. As only the floating log is used aboard ship the correction for current cannot be found, and therefore has to be neglected, causing an error in the course made good, equal to the amount of the neglected correction, equivalent to as large an error in variation or deviation.

As ocean currents have a velocity up to two miles per hour, the error in the course made good, on account of neglecting the course correction for current, is sometimes considerable. With vessels making only ten miles per hour the error equals up to one point in course.

The rate of current divided by the rate of the vessel's speed, furnishes a quotient, which multiplied by the distance run by floating log gives the radius of a circle, which may be called the circle of uncertainty, because the direction of the current is not known, on the peripherv of which circle the vessel is found to be, instead of at its center representing her positon by floating log. The radius of this circle increases with the distance run, and decreases as the speed of vessels increases. As long as the circle of uncertainty does not touch the shore or any obstacle, the vessel is safe, but otherwise stranding may be expected every moment. The radius of the circle, equal to the drift of current, determines the distance from the nearest obstacle, at which distance it is not safe to run any further without verifying position. For instance, the ship's rate being ten times the rate of current, a safety margin of one-half point in course is required to pass any obstacle, and after a run of 1,000 miles by floating log, the radius of the circle of uncertainty equals 100 miles, and if this circle nearly touches the land or the light to be made, the ship has to verify position before running any further . After verification the distance yet to be traversed being 150 miles, and the same conditions prevailing as previously, the radius of the circle of uncertainty equals 15 miles, at which distance from the object verification of position is again required. Which shows, that verification of position is necessary at certain intervals; and the nearer the land the oftener it has to take place, in order to avoid stranding. The circle of uncertainty not being taken into account, as is generally the case, vessels get stranded by sheer neglect of verifying position in time, frequently causd by the lack of astronomical methods to reduce available observations. The use of the floating log makes it imperative to verity position as often as an opportunity offers, in order to bring the radius of the circle of uncertainty down to a minimum; and the want of astronomical methods for reducing all available observations is therefore so much keener felt

All astronomical methods used in practice are based upon the one object theory depending on the change of position by compass and log during observation, which change is a very uncertain element, because of unknown currents; and consequently results by one object methods cannot always be depended upon. Besides, nine-tenths of all the methods in use are mathematically not correct, and as a consequence the results by them are sometimes largely in error (see the MARINE RECORD of November 8 and 29, 1900, and of January 10 and February 28, 1901.) In mid-ocean errors in position cut no figure, but in the vicinity of land every error counts and contributes to stranding. An error in the last point of departure by astronomical observation, causes an error in all subsequent positions by compass and log, and therefore may cause stranding, especially in thick weather. Another defect of the methods in use is, that some of them are not applicable to all heavenly bodies, preventing vessels to avail themselves of all the opportunities offering for observation; and finally, results by one object methods are delayed, sometimes for hours, because of having to wait for the object to come into the desired position for observation. All these defects, drawbacks and delays contribute to stranding; they are avoided by using my two object method, published in the MARINE RECORD of April 19, 1900, furnishing instantaneous and exact results.

In thick weather, and in the vicinity of land, the bottom of the sea is the only available guide. The configuration of the ground as indicated by soundings generally furnishes the data for finding the place the ship is in. Navigation by soundings is the most important branch of navigation, but has never been made the subject of scientific study, and therefore is entirely wrapped in mystery. What little light has been shed upon it emanates from Sir Thomson's "Lecture on Navigation" in which he says:

"Take a long slip of card, or of stiff paper and mark along one edge of it points at successive distances from one another, equal according to the scale of your chart, to the actual distance estimated as having been run by the ship in the intervals between successive soundings. If the ship has run a straight course, the edge of the card must be straight, but if there has been any change of directions in the course, the card must be cut with a corresponding deviation from one straight direction. Beside each of the points thus marked on the edge, write on the card the depth and character of bottom found by the lead. Then place the card on the chart, and slip it about till you find an agreement between the soundings marked on the chart and the series marked on your card." To which Capt. Lecky, in his book on navigation, rightly remarks, that tracing paper is preferable to cardboard.

The advice of Sir Thomson, however, is rendered illusory by the well known fact, tnat courses and distances made good, forming the basis of the soundings taken, are not obtainable by the exclusive use of the floating log; and that without a correct basis comparison of soundings with the chart, if not impossible, is deceptive in the highest degree. Even when courses and distances made good are found by the ground log, the method suggested can be depended upon only under certain conditions and with certain limitations, as will be seen from the following:

On account of the pitching and rolling of a vessel an error in course and distance is unavoidable. Supposing the error in course to be ¼ point, and in the distance 1-20 the distance run; ¼ point in course is equivalent to a sideway error of 1-20 the distance run; consequently, as errors may be positive or negative, they have to be assumed both ways, and the uncertainty in position is represented by a square the side of which equals 1-10 the distance run; the center of the square being the position by compass and ground log. Within this square the sounding taken pertains to a curve or horizontal, its part within the square forming a certain angle with the ship's course; and it is obvious, that if this angle is nearly zero, only the course is corrected or verified; and if this angle is nearly 90 degrees, only the distance is corrected by the sounding. Consequently, if angles differ much from 0 and 90 degrees, neither the course nor distance can be verified by the sounding. What applies to a single sounding applies to all soundings taken. From which follows, that to correct courses, the horizontals of soundings have to be nearly parallel with the ship's course; and to correct distances they have to be nearly at right angles to the ship's course. Furthermore, to make sure of courses, they have to be shaped in agreement with the direction of horizontals or coincide with them. This principle is partly expressed by Capt. Lecky, in the following passage: "In navigating an inlet and unmarked channel, where the water shoals pretty gradually on each side, the safest plan is not to attempt to steer a mid-channel course, but to zig-zag it, keeping a lead going in both chains. By this plan you can tell which side you are on, and how to put the helm to avoid danger."

At sea generally but on one side the shore has to be watched by the lead to insure safety by not overstepping a certain curve, called the safety curve, being a curve of equal depth along a certain part of the coast, or around shoals and reefs, at a safe distance from the danger nearest to the curve . Outside of the safety curve the ship is free to shape her courses; and in order to run the least risk of crossing the safety curve, a curve of greater depth than the depth of the safety curve, and nearly parallel to it, has to be selected as guide by the lead.

Thus courses are made safe and sure, and distances only depend on the log for a certain space of time. The verification of distances by the lead, presents some easy problems which cannot be enumerated and explained here for want of space.

Because safety curves and guiding curves are not used in practice, vessels always get stranded in fog and thick weather.

With faulty logs, faulty and limited astronomical methods, an incorrect basis and theory for soundings, and sometimes incorrect charts, vessels cannot be expected to avoid stranding.

JOHN MAURICE,
Civil Engineer and Nautical Expert.

Chicago, November, 1901.

## VESSELS CLASSED.

The vessels classed and rated this week by the American Bureau of Shipping in the Record of American and Foreign Shipping, New York, are as follows: Screw International, screw Simon J Murphy; schooner Samar, schooner Orlando V. Wootten, schooner Ruth, schooner Savannah, schooner Henry B. Fiske, schooner Francis C. Tunnell, 3-masted schooner Fannie L. Child 3-masted schooner Olga, 3-masted schooner Helen G. Mosely, bark Antioch, bark H. G. Johnson; ship William P. Frey. ½-brig C. C. Sweeney, barge Sancon, barge Trevorton, British schooner Ida, British 3-masted schooner John S. Parker, British 3-masted schooner Palma and Portugese ½-brig Vera Cruz 5th

THE New York Chamber of Commerce has decided in favor of the creation of a department of commerce and industry, the head of which shall sit in the president's cabinet. Such a department would consolidate various bureaus now under the direction of the secretaries of the treasury, state and agriculture, and would insure much better work in furnishing the interests of our trade abroad.

## SHIPPING AND MARINE JUDICIAL DECISIONS.

(COLLABORATED SPECIALLY FOR THE MARINE RECORD.)

Damages--Personal Injury—Reduction of Amount on Appeal.—An award of $12,000 damages, made by a court of admiralty for a personal injury received in a collision, reduced to $60,000 on new evidence taken in the appellate court, showing that the improvement in the condition of libelant since the trial was such as to indicate that the injury was not so serious or permanent as it appeared at the time of the trial. The Homer, 109 Fed. Rep. (U. S.) 572.

Carriers—Steamship—Overcrowding Passengers—Damages.—Where a steamship company having accommodation for and authorized to carry only 375 steerage passengers sells tickets to and receives 475 such passengers, and by reason of overcrowding the passengers are delayed and injured, the company is responsible for such damage, since such crowding beyond the point at which the passengers could be safely carried is a breach of the contract to safely carry them. The Valencia, 110 Fed. Rep. (U. S.) 221.

Admiralty—Intervention.—Marine insurers, who, by payment of a loss resulting from the injury of a vessel in collision, have become entitled by subrogation to a portion of the fund recovered by the owners from the vessel in fault, may intervene and set up their claim thereto after a decree has been rendered in favor of such powers on a mandate from the appellate court, the issues raised by such intervention relating solely to the distribution of the fund recovered. Mason et al. vs. Marine Ins. Co. et al., 110 Fed. Rep. (U. S.) 452.

Collison—Failure to Display Light—Tug and Tow.—Where a canal boat being towed alongside a tug at night in a harbor failed to display a white light on her outboard bow, as required by inspector's rule 11, both the tug and the canal boat are chargeable with the fault; and the tug is not exonerated from liability for a collision resulting by the fact that her master ordered the master of the canal boat to put out the light, but it was his further duty to see that his order was enforced. The Nettie L. Tice, 110 Fed. Rep. (U. S.) 461.

Shipping—Loss of Cargo—Unseaworthiness of Lighter.—A lighter, so constructed that the presence of any water in the hold rendered it unstable when loaded, which overturned shortly after being loaded, when the weather was clear, the wind light, and the water smooth except from a slight swell caused by a passing steamer, by reason of water entering her hold through seams which were insufficiently calked, must be held unseaworthy when loaded. Nord-Deutscher Lloyd vs. President, etc., in Insurance Co. of North America, 110 Fed. Rep. (U. S.) 420.

Marine Insurance—Effect of Abandonment to Insurer—Right to Damages Recoverd for Collision.—The effect of the abandonment to the insurers of a vessel sunk in collision is to vest in the insurers not only the title to the property abandoned, or its proceeds, but also the right to whatever may be afterwards recovered or received as a compensation for the loss; and damages recovered from the vessel in fault for the collision, for the loss of prospective earnings of the vessel sunk, belong to the insurers, and not to the insured. Mason et al. vs. Marine Ins. Co. et al., 110 Fed. Rep. (U. S.) 452.

Judgment—Conclusiveness.—Lieblants shipped petroleum, covered by marine insurance, on board a bark which became disabled at sea. Salvage and other expenses were incurred, to pay which the ship and cargo were subsequently sold by the master. Held, in an action on the policy, that a judgment in an action on the master's bottomry draft, pledging ship and freight, in which the sale of the ship was held invalid, was not admissible in evidence, nor binding in any way, it being between different parties, and on different evidence. De Farconnet et al. vs. Western Ins. Co., 110 Fed. Rep. (U. S.) 405.

Seamen—Prepayment of Seamen—Constituional Law.—Section 24 of the act of Congress of December 21, 1898, entitled "An act to amend the laws relating to American seamen, for the protection of such seamen, and to promote commerce" (30 Stat. 755), in prohibiting the repayment of the wages of seamen, is a constituional enactment, applying to the prepayment on American soil or in American waters of the wages of seamen, who are Britsh subjects, shipping in American ports on British merchant vessels; there being no treaty between the United States and Great Britain inconsistent with such application. The Kestor, 110 Fed. Rep. (U. S.) 432.

Anticipation of Danger—Damages to Scows.—A tug having in tow five mud scows, proceeding down the Elizabeth river to the dumping grounds in Chesapeake Bay, laid up during the night, owing to a high wind. In the morning the weather was clearing, the wind had abated, and the tug proceeded out into the bay. When near the dumping grounds the wind increased, the lines parted, and some of the scows were injured. The weight of the evidence showed that there was no good reason to anticipate danger until it was too late to safely return. Held, that the tug was not liable for the damage to the scows. The E. Luckenback, 109 Fed. Rep. (U. S.) 487.

MARINE RECORD

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CLEVELAND, O., NOVEMBER 21, 1901.

## THE LIME-KILN CROSSING.

The time has about arrived to place lock gates at the Lime-kiln Crossing. Detention is being experienced with every change of wind, and the commerce of the great West and Northwest is handicapped.

It is quite possible that the drainage through the Chicago canal is accountable for a few inches at least of the lowering of the water at the crossing, of this, however, we have no data to prove the assumption, nor can any records be called on to establish anything beyond an opinion.

It seems useless to say that the government has been remiss in not tabulating indisputable statistics relative to the flow and output of water through this channel, the fact remains, the figures are not to hand.

Relative to lake levels, we have upheld the theory that precipitation alone supplies the demand, as a consequence, if the drainage is at any time greater than the amount of the precipitation, the supply will be less than the original to the extent of the artificial drainage.

With lock gates at the Lime-kiln Crossing it is possible that the current over the flats on the American side might be accelerated and remedial works would be required there also, this, of course, would involve a very extensive system, and also a very expensive one for the country, but not one whit more than the western trade is entitled to.

It is to be hoped that Congressman Burton, chairman of the House River and Harbor Committee, will devote a little of his superabundance of waterwavs knowledge to the Lime-kiln Crossing question, and obtain from the Chief of Engineers all possible information on this most important question.

It is of little use to build steamers of large size and economize on their workings if they are prevented from floating, hence, something must be done at the Lime-kiln Crossing, event, and although, it is in Canadian territory and at a point where the United States has spent millions of dollars on past improvements.

## STEAM OR SAIL COASTERS.

Now that a fleet of lake-built steamers has entered the New England coasting trade, it is possible that the eastern trade has seen the first inroads of an innovation which will for all time in the future change past and existing methods of commerce and transportation, and the small schooners out of which so many thousands of people have been making a living ever since the earliest days in the history of the country, will from this out drop into desuetude.

The schooner property, trade and employment, has survived and prospered in the face of all modern changes and improvements in every other known industry. Schooners of immense size are even now being built, and with every faith in their earning ability for the next decade or two, and that their history will be but a repetition of similar property as evidenced in the experience of the past two centuries.

It is hardly a pleasant outlook for the schooner sailing age to contemplate, yet it is a foregone conclusion that before many years have elapsed steamers will cover the trade from gulf to gulf, and schooners will be obliged to pick up an occasional cargo to minor ports, earning a living freight only, by the fair slants of wind experienced during a passage, with staring starvation if a couple of weeks wind-bound or meeting with adverse weather.

It seems like the irony of fate that the lakes should knock out the schooner trade on the Eastern borders, as also on the Pacific slope but we must bow to the inevitable and accept the change graciously. The lakes will build for the Atlantic and Pacific coasts all the tonnage required to drive out the schooner trade.

## WIRELESS TELEGRAPHY.

With the now well tried system of wireless telegraphy it would seem that no lake vessel ought to be out of reach of assistance, or owner's orders, if fitted with the apparatus as is getting common on the Atlantic ocean.

The Great Lakes present opportunities for usefulness for such a system usnurpassed. It has been found possible for ships at sea to communicate with other vessels hundreds of miles away, and in case of accident it is undoubtedly possible for them to summon assistance from other vessels equipped with the proper apparatus. The time will come, no doubt, when the steamship companies will receive reports from all their vessels wherever they may be at regular intervals daily, and bulletins will be issued which will keep the friends of those on board informed of the exact location of the vessels and of the weather conditions which prevail. On the Great Lakes it will be possible for vessel owners to keep in constant communication with their boats and in case of accident due to broken machinery or stress of weather to send help almost instantly from the nearest port. Such mysteries as those of the City of Alpena many years ago and the Chicora of more recent date will no longer be possible, and it may be even that such disasters can be averted, says the Grand Rapids Press. Certainly the value of life saving stations can be greatly increased by a wireless telegraphy equipment, and without doubt such equipments will be provided.

THE need of favoring legislation for our shipping will be found in the statement that although American vessels increased 62,435 tons during the year, American vessels carried only 8.2 per cent. of our exports and imports, the smallest percentage in our history. In this connection the commissioner is forced to make this humiliating admission: "Our fleet of ocean steamers in foreign trade is too small to be compared with that of foreign nations." The report will say that the steel vessels under construction or under contract during the current fiscal year will much exceed similar tonnage built in any previous year. The Bureau is advised of 89 such merchant vessels of 355,645 gross tons, to be valued at about $36,000,000. Besides these, 71 naval vessels of 281,148 tons displacement are building at contract prices of $78,000,000. In this work 44 plants with a capital of about $68,000,000, employing about 46,000 men, are engaged.

THE Secretary of the Navy in his annual report makes a distinction between Naval Reserves and Naval Militia. Our contemporaries have persistently insisted in combining the terms. The Secretary of the Navy is ever present and everlastingly right in advocating the enrollment of a National Naval Reserve, and it is no innovation even at that. Naval Reserves, however, should be men of a different caliber and calling to those enlisted in the ranks of the militia naval, also is there ample room and reasons for militia naval movement and expansion of both arms of the service.

It is figured that about 25 vessels passed away during last week's blow. The majority were old worn-out craft and of small tonnage.

## LAKE FREIGHTS.

Agreeably with the season, freight rates are advancing all around; 4 cents on wheat is now quoted from the head of the lakes for spot tonnage.

The Chicago rate is 2½ cents on wheat with slow chartering; corn 2¼ cents. With the grain blockade at Buffalo vessel owners fight shy at grain chartering. From Fort William to Detroit, 4 cents was also paid and 5 cents offered for winter storage at Buffalo.

The last kick of the iron ore market requires a $1.50 rate from the head of the lakes but charters hold to last week's figure of $1.25 and it has been generally accepted rather than get tied up with grain. Escanaba shippers offer 90 cents with a fair supply of takers. It is now conceded that the season will show a volume of 20,000,000 tons of iron ore shipments with about half a million tons shipped by rail.

The lumber dealers are now exercised about not having sufficient stock on hand and are bidding $3.50 per M. feet from Duluth and advance of 25 cents over last week but there is not tonnage enough available to meet their demands and another 25 cent raise seems certain on last cargoes. Munising paid $3 on a Cleveland cargo.

Coal chartering is brisk at advanced rates and 75 cents is being paid from Ohio ports to the head of the lakes and 70 cents to Lake Michigan. From Buffalo 80 cents is offered on anthracite to Chicago—Milwaukee with not too much tonnage offering.

## LAKE SHIP BUILDING.

Sixty-five per cent. of the tonnage of American shipyards in 1901, ending June 30, came from the Great Lakes. The annual report of the commissioner of navigation shows the vessels from the shipyards as follows: Cleveland, five vessels of 20,752 tons; Lorain, nine vessels of 34,448 tons; Toledo, five vessels of 7,465 tons; Chicago, six vessels of 18,624 tons; Wyandotte, Mich., five vessels of 21,892 tons; Buffalo, three vessels of 10,010 tons; Port Huron, two vessels of 6,902 tons; West Bay City, Mich., two vessels of 7,742 tons; West Superior, Wis., two vessels of 6,124 tons; South Chicago one vessel of 5,002 tons.

The average tonnage of the forty ships was 3,478. Nine of the steamships built on the lakes were for ocean service, their average tonnage being about 2,100. Two wooden steamers were built in the lake shipyards during the year, one of 1,736 tons, at Green Bay, Wis., and the other of 1,532 tons at West Bay City. The largest output on the lakes was from the Lorain shipyards, Wyandotte coming second and Cleveland third. Five of the steamers built on the lakes had a gross tonnage of over 5,000 each and ten of them less than 5,000 tons but more than 4,000. Commissioner Chamberlin thinks the time is not far distant when the lake shipyards will furnish much tonnage for salt water transportation.

## PROPOSED DEPARTMENT OF COMMERCE.

The need of a new department to be known as the Department of Commerce, the head of which shall be a member of the President's cabinet, has been apparent for some time. The wonderful development in industrial and commrecial lines makes this almost imperative in order that the Treasury and Interior departments may be relieved of an accumulation of duties which in no wise belong to their proper functions.

Matters relating to the merchant marine, both as to its foreign and domestic branches, including lake and river navigation, would properly belong to such a department as the one proposed, where they could receive consideration commensurate with their importance. Rail transportation, mining interests, and the great industrial development in manufactures would naturaly fall to this new department, and the magnitude of these interests entirely warrant their separation from departments where it is not possible to give them adequate consideration.

It is expected that President Roosevelt will recommend the creation of this new departmnt at the coming session of Congress.

Word was received Friday of the death of Capt. "Nat" Stickney, of the firm of Carkin, Stickney & Cram, in Haverhill, Mass., where the funeral was held Thursday last. Capt. Stickney was well known at lake ports in connection with the firms many large dredging contracts.

## NAVAL STATIONS.

Coaling stations for the use of the American men-of-war which will defend the Nicaraguan canal will be acquired by the United States now that the isthmian canal convention is signed, says a Washington dispatch to the Herald. These stations will be established at:

Almirante Bay, Chiriqui Lagoon, Colombia.

Gulf of Dulce, Costa Rica.

Danish West Indies.

Galiapagos Island, off the coast of and belonging to Ecuador.

While the treaty permits the erection of fortifications by the United States, the uselessness of going to such a tremendous expense is apparent to omcers of both the army and navy. The great initial cost will be but the beginning, as it would be necessary to keep the fortification in repair and to maintain large garrisons, which would be subject to the ills prevalent in Central America.

Admiral Dewey says the canal can only be defended by the navy. Rear Admiral Bradford, chief of the bureau of equipment and a member of the naval war board, says emphatically that in order that the fleet may operate from near by bases it is necessary that they should be established without delay. Rear Admiral Bradford has earnestly recommended the acquisition of territory for use as coaling stations at the points named, and the state department has been conducting negotiations with the countries in which they lie.

The Danish West Indies are naturally a desirable point for the defense of the canal against any nation save Great Britain. The British navy has an admirable coaling base well protected, in Kingston, Jamaica, and in case of trouble with the London government the Danish West Indies would be of comparatively little value.

## GAS BUOYS.

The big ocean dredges Thomas and Mills are doing excellent work on what is to be our 40-foot channel to the sea from New York. Since beginning this work less than a year ago, Capt. A. B. Conner, the superintendent in charge, stated to a MARINE JOURNAL representative that a mile of the new channel has been excavated to a depth of seven fathoms at low water and a width of 2,000 feet, as per contract with the United States government. This is pumping up sand and carrying it off with a vengeance when considered that the average depth of water before dredging began was from 14 to 18 feet over this entire mile, beginning at Gedney's channel outer (sea) buoy and continuing on over the bar about northwest by west toward the Main Ship Channel opposite the Quarantine Station.

Now that a mile of this channel has been dug, it is proper that we should discuss it by its right name, the Ambrose Channel. The Thomas and Mills are kept at work night and day; in fact, lying idle only Sundays and holidays, and in every hour and twenty minutes each boat sucks up 4,700 tons of sand, working 1,000 feet in width each, hence it is not to be wondered at that these herculean sand-suckers have plowed a mile successfully since they began their important work for this port.

In order to work nights it became necessary to adopt the use of Pintsch gas-lighted buoys, which answer for day marks as well as night. Capt. Conner was asked what he thought of the value and reliability of these lights in comparison with the electric lights in Gedney's Channel. He stated emphatically that he considered the Pintsch light far superior for the reason of its clearness and greater brilliancy, and as for its reliability there was no comparison. In that connection he said: "I would not undertake to state how many times the electric lights in Gedney's Channel have gone out entirely since I have been working on the bar, but on several occasions, and usually when they were most needed by vessels going in and out of port. Our Pintsch gas buoys are always burning brightly and never go out. We have six of them, three on each side of the channel which we are digging, and it would be impossible to carry on our work at night without them. These buoys will burn twelve months without being refilled with gas. It is my opinion that the only reliable channel mark at night is the Pintsch gas-lighted buoy."

The foregoing unsolicited testimonial to these valuable channel marks for both night and day, from a man whose work has enabled him to observe them closely, either day or night, for nearly a year, should be encouraging to the manufacturers of the Pintsch gas-lighted buoys. Although it would seem that these buoys had almost reached a point of perfection, the manufacturers are still making additional improvements, with the result that navigators are continually demanding more of them. These channel marks are undoubtedly the most important aids to difficult night navigation that have yet been produced.

In the presence of a distinguished company of residents of Illinois a splendid silver service, valued at $10,000, was presented on Saturday last, to the battleship Illinois, lying in the Hampton Roads. The service was the gift of the people of the state of Illinois to the battleship. Senator Mason delivered the presentation speech, and on behalf of the vessel's company Capt. Converse responded. Assistant Secretary of the Navy Hackett expressed his thanks to the people of Illinois. The entire party was entertained at luncheon by Capt. Converse and the officers of the ship.

## LAUNCH OF THE OSBORNE.

The steamer Frank W. Osborne, built to the order of J. C. Gilchrist & Co., was successfully launched at the Lorain yard of the American Ship Building Company, Saturday noon. The Osborne is one of the modern lake freighters, and as she moved on the ways Miss Helen Miller, daughter of Mr. G. R. Miller, christened her.

The launching party from Cleveland in charge of J. C. Gilchrist, president of the company for which the boat was built, represented a brilliant assembly. Besides Mr. Gilchrist, there were Mrs. J. C. Gilchrist, C. P. Gilchrist, J. D. Gilchrist, Miss Maria Gilchrist and Master Charles Gilchrist, Mr. and Mrs. Frank M. Osborne, Mr. and Mrs. C. W. Baine, Mr. and Mrs. S. P. Sane, G. E. Collings, F. W. Hart and Misses Florence Osborne, Isabel Strong, Maria Tallman, Helen Murray, Ethel Baine, Mildred Vilas, Dorothy Osborne, Margaret and Gertrude Miller, Pasley and Jennette Shrne, Lela Wood and Master Rolland Wood, of Cleveland, and a party from Sandusky, including Mr. and Mrs. John Shuck, Mr. and Mrs. R. E. Shuck, P. G. Walker and James Flynn.

The steamer Osborne was started about seventy days ago and is being hustled to completion, although no business will be done with her this year.

## CANADIAN COASTAL PRIVILEGES.

Sir Wilfrid Laurier and Minister of Public Works Tarte received a strong representation on Wednesday from Montreal shippers showing the necessity of American bottoms being granted the privilege of carrying grain between Ft. William and Canadian ports before navigation closes. Otherwise every grain shipper will have to default on his contracts.

Owing to bad weather on the lakes, Canadian tonnage for grain is reduced at least 1,200,000 bushels for the season.

Mr. Tarte wired to Capt. Gaskin, of the Montreal Transportation Co., for information. In reply Capt. Gaskin wired that, owing to an accident to the steamer Rosemount and bad weather the last ten days, the company had been obliged to cancel some of the contracts from Ft. William to Georgian bay. He would not oppose the application of the Montreal grain men, and did not know of any Canadian bottoms available at present.

Although there was very strong opposition to a renewal of the previous order in council allowing American bottoms to engage in Canadian trade, Mr. Tarte will bring the matter before his colleagues and it is thought that the permit will go through for American bottoms to carry the cargoes required between Canadian ports on the lakes.

## LETTERS AT DETROIT MARINE POST OFFICE.

NOVEMBER 13, 1901.

To get any of these letters, addresses or their authorized agents will apply at the general delivery window or write to the postmaster at Detroit, calling for "advertised" matter, giving the date of his list and paying one cent.

Advertised matter is previously held one week awaiting delivery. It is held two weeks before it goes to the Dead Letter Office at Washington, D. C.

Anderson Walter, Kennebec
Adamson Will, Tampa
Brown John, Gilbert
Blanchard Fred E., Tampa
Brown Walter, Griffin
Carpenter E M, Tampa
Call C. J.-2
Cron Earnest
Dougherty F M, Veronica
David A P
Evans Cyrus, Chattanooga
Delder Frank, Gilchrist
Flord Mrs D, H Neil
Gaspar Bennett
Haden William
Hand Joseph
Hunter Ethridge
Hitchcock Nelson
Hamilton George
King J L, Pauly
Kean D A, Northwestern
Kornath Eugene, O T Flint
King Ed
Kerven Geo H
Kirckendale Capt Joe
J L Green
Lockwood John
H J Johnson
Liddell James, Crescent City
Leroux Capt M, tug Neelon
Langstaff Wm
Cunceford Geo
Morrison Wm
May Fred W, Kennebec
Moorhead Mrs Henry,
Bermuda
Mascath Wm
Marion H N
Monks Geo H, Perry
Morrison James
Morehead H F, Bermuda
Malloy John J, Frick
McClure Colin
McKay Neil, Forbes
McGill Mary L
Nicholson Capt John-2,
C Elphicke
Nickerson Chester,
Farwell
Nelson Cas, Sitka
Oswold Wm, Tacoma
Pratt Wm, Penobscot
Porter Alexander
Roy Edgar
Rock Wilson, Holden
Russell Matthew, Faxton
Searten Harry E
Smith Arthur, Bradley
Sutherland Herman E
Vaughn Chas, H I Johnson
Witzman Chot, Eads
Will H A
Weeks H D
Whitney James T
Wabble W J
Young John A, Armour

F. B. DICKERSON, P. M.

DEAN BROS.' "economic" vertical double-acting air pump and condenser is the subject of a finely illustrated circular published by the Dean Bros.' Steam Pump Works, Indianapolis, Ind. The circular has a number of half tones and brief descriptive matter in reference to independent apparatus for condensing engines.

## DETROIT.

*Special Correspondence to The Marine Record.*

David Carter, manager of the Detroit & Cleveland line, who has been dangerously ill for the past three weeks, is recovering and will likely be at business again in a few days.

General Manager David Carter, of the Detroit & Cleveland line, who has been ill for some time, suffered a relapse on Wednesday and his doctors now give faint hopes of his recovery.

The steamer Emerald, brought in waterlogged from Lake Huron, has been placed in drydock and it is estimated that $3,000 will be expended in putting her in good seaworthy condition again.

Charles D. Thompson, Port Huron, has resigned his position as local manager of the Great Lakes Towing Association. Edward Root, who has been connected with the office of Boynton & Thompson, has been selected to succeed him. Mr. Root is well known, and has been connected with the tug business at Port Huron for several years.

The following meteorological observations are furnished by the office of the U. S. Weather Bureau, Detroit, for the week ending November 19th: Prevailing wind direction for the week, northwest; highest velocity, 37 miles from the northwest on the 12th; mean temperature for the week, 34 degrees; highest temperature, 44 degrees on the 13th; lowest, 28 degrees on the 15th.

Mrs. Sarah McCurdy, who died at her home in Detroit on Saturday morning, at the age of seventy-six years, was the twin sister of Capt. John Wilson, who was in command of the steamer Lady Elgin when she was run down and sunk by the schooner Augusta, off Winetka, Lake Michigan, in September, 1860. Capt. Wilson was among the lost. Upwards of 400 people perished by the disaster.

Captain Thomas Barry is at Au Sable with the tugs Howard and Maud S., and all the necessary wrecking apparatus for the raising of the engines and boilers of the wrecked steamer Baltimore. The engines and boilers will be taken to East Tawas, and thence shipped to Chicago by rail to be installed in one of the boats for the Chicago-Milwaukee run, presumably either the Empire or Badger State.

If you will forward to the Lee Injector Mfg. Co., corner Abbott and 4th Sts., Detroit, Mich., your name and full address, and if convenient name and number of your Engineers' Association, by postal or otherwise, they will mail you free of charge their valuable treatise on injectors, "Its Uses and Abuses," how it is constructed, how to connect it, and how to operate and care for it, with other valuable information useful to all engineers.

Quinn's wrecker Reliable left here a few days ago for Toledo, where it will perform a rather novel piece of work. The Lake Shore railroad, in building a bridge at Toledo, drove a number of temporary piling in order to carry on the work. These have now to be removed and as they can not be pulled up, they will have to be cut off even with the bottom. There are 300 of them, and Quinn will use dynamite to cut them off. Dynamite cuts off the pile as cleanly as if it had been sawed.

The steamer Greyhound, once known as the "White Flyer of the Great Lakes," and which as the "Northwest" plied between Detroit and Houghton has been undergoing the process of dismantling and is now nearly stripped of her machinery, which will be placed into the new steamer Greyhound, being built for the White Star line. The old boat plied from Detroit to Portage Lake in the '60's. At that time she was considered, by far, to be the finest passenger boat on the lakes. The Greyhound, then called the Northwest, was in the Houghton-Detroit trade for two years. The old Greyhound was built at Manitowoc 33 years ago, but was purchased shortly after by Capt. Eber B. Ward, who brought her to Detroit and ran her for a couple of years between Detroit and Houghton, Mich. She was then known as the Northwest. Later Capt. Ward sold her to the D. & C. line and the steamer was equipped with engines taken from the side-wheel steamer City of Detroit, which had been wrecked off Grand Haven. A few years later she was sold again and put on the Detroit-Port Huron route and her name changed to the Greyhound. Two years ago the old Detroit's machinery went on a blow up and nearly wrecked the Greyhound. It cost the White Star line owners $40,000 for new engines and other machinery at that time. This will now be placed in the new boat.

## PORT HURON.

*Special Correspondence to The Marine Record:*

The new steel steamer Henry Stineburner, built by the Jenks Ship Building Co., of this city, for the Kinsman Transit Co., of Cleveland, left this port Monday on her first trip for Lake Superior to load ore for Ohio ports. The Stineburner is one of the best built and finest looking ships on the Great Lakes. She is fitted with all the latest improvements, general electric plants, Williamson's steam steering gear, and all her machinery is fitted with the Phoenix metal. She is under the command of Capt. Jos. Lampho, and Wm. Miller, chief engineer. The Jenks Ship Building Co. can be congratulated in turning out such a fine looking ship, and they can expect great results from her and further orders to follow, as there is nothing better built afloat.

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SIMPLE, SAFE, RELIABLE, SPEEDY.

It may be possible to build better and safer boats, but it hasn't been done yet.

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Burn Continuously

from 80 to 365 days and nights without attention, and can be seen a distance of six miles. . . . . .

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160 Broadway, New York City.

## TREASURY DECISIONS.

FUSIBLE PLUGS FOR MARINE BOILERS.

TREASURY DEPARTMENT, November 8, 1901.

To UnitedStates supervising and local inspectors of steamboats, and others concerned:

It has recently come to the attention of the department that the provisions of section 4436, Revised Statutes, requiring fusible plugs in boilers to be made "of good Banca tin" are being violated by substituting for that metal alloys consisting of but a small portion of tin combined with lead and other metals inferior for the purpose intended to "good Banca tin."

As the law referred to is absolute as to the use "of good Banca tin" in the fusible plugs of marine boilers, "in the flues crown-sheet or other parts of the boiler most exposed to the heat of the furnace when the water falls below its prescribed limits," the substitution of alloys of other metals in such fusible plugs subjects the makers thereof to the penalties provided in section 4429, Revised Statutes, as follows:

Every person who constructs a boiler, * * * or who delivers any such boiler for use, knowing it to be imperfect in its flues, flanging, riveting, bracing, or in any other of its parts, shall be fined one thousand dollars, one-half for the use of the informer.

Owners of steam vessels using fusible plugs filled with metal or metals other than Banca tin are also liable to a penalty of $500, under the provisions of section 4499, Revised Statutes, which reads as follows:

If any vessel propelled in whole or in part by steam be navigated without complying with the terms of this Title, the owner shall be liabel to the United States in a penalty of five hundred dollars for each offense, one-half for the use of the informer; for which sum the vessel so navigated shall be liable, and may be seized and proceeded against by way of libel in any district court of the United States having jurisdiction of the offense.

The manufacturers of fusible plugs, whether boiler makers or others, will be required hereafter to stamp their name thereon for identification, and file with the local inspectors in the district where their plugs are in most general use a certification stating that the fusible plugs manufactured by them are filled with good Banca tin.

Supervising and local inspectors are hereby directed not to authorize hereafter the use of any fusible plug not stamped with the maker's name, and when such maker's certificate as herein provided for is not on file in the inspector's office; and are further directed not to accept or pass any fusible plug not made in form in strict accordance with section 26, Rule II, Rules and Regulations of the Board of Supervising Inspectors.

L. J. GAGE, Secretary.

## THE PUREST IRON ORE IN THE WORLD.

For centuries the Dannemora iron ore mines in Sweden have been to the iron maker what Mecca is to the Mohammedan. It is there that the purest iron ore commercially known to man exists. The operating company is a close corporation, and the ore is sold to no one outside of it; that is, the owners all possess iron or steel producing plants, and obtain from these mines part of their supplies. They limit the production to 50,000 tons per annum, and place it at a price which might seem prohibitory, but from its quality they can afford to so charge themselves.

The ore, which now comes from entirely under-ground operation, is magnetite, with an average of 50 per cent. of metallic iron, and from 0.0025 to 0.005 per cent. phosphorus. It requires very little flux in the blast furnace, as the gangue is principally limestone, and the phosphorus is of that minute quantity which generaly leads one to doubt the chemists' reputed results.

The mine has been operated for at least 400 years. At first it was owned by private parties, but later reverted to the government. In 1863 it was again taken by individuals, and has been successfuly worked ever since. Up to 1829 the ore was disrupted by fire setting. In that year the use of gunpowder was introduced. As the present working depth is 846 feet, visiting the works seems like penetrating the bowels of the earth, and when we reflect on the great age of the mine and the primitive character of its first exploiting, we could not help feeling that from some dark corner might come the spirit of the ancient Norseman to ask why we were intruding upon its original home.—Robert W. Hunt, in Cassier's Magazine for November.

## NOTICE TO MARINERS.

UNITED STATES OF AMERICA—NORTHERN LAKES AND RIVERS—WISCONSIN.

TREASURY DEPARTMENT,
OFFICE OF THE LIGHT-HOUSE BOARD,
WASHINGTON, D. C., November 14 1901.

RACINE HARBOR.

RACINE PIERHEAD LIGHT STATION.—Notice is hereby given that, on or about November 23, 1901, a fourth-order fixed red light will be established in the new steel structure recently erected at the outer end of the north pier, entrance to Racine Harbor, westerly side of Lake Michigan.

The light will illuminate 270 per cent. of the horizon, from S. round by eastward and southward to E.; bearings true and from seaward.

The focal plane of the light will be 46 feet above mean lake level and the light will be visible 14 statute miles in clear weather, the observer's eye 15 feet above the lake.

The structure is a white, square, pyramidal, steel tower, the lower half open, the upper half closed, surmounted by a black, ten-sided lantern.

The present fog bell will be attached to the easterly side of the tower and will be sounded by machinery as heretofore, single blow every 20 seconds during thick and foggy weather.

On the same date the present sixth-order fixed red light, on the north pier near its outer end will be discontinued.

RACINE (ROOT RIVER) LIGHT STATION.—Notice is hereby given that, on or about November 23, 1901, the fourth-order fixed white light, shown from the square tower attached to the brick dwelling at this station, on the north pier at the entrance to Racine Harbor will be discontinued.

By order of the Light-House Board:

N. H. FARQUHAR,
Rear-Admiral, U. S. Navy, Chairman.

DOMINION OF CANADA.—ONTARIO.

CHANGE IN POSITION OF PORT COLBORNE BACK RANGE LIGHT.—The inner range tower at the Lake Erie entrance to the Welland canal at Port Colborne has been moved to a new position on the west side of the canal, 300 feet N. W. by W. ⅛ W. from its former position on the east side of the harbor, and now stands on a cribwork block 8 feet high, 2,090 feet N. by E. ¼E. from the outer range tower on the west pier head.

The light shown from the tower is fixed red, and should be visible 7 miles in the line of range. The illuminating apparatus is catoptric.

The new range leads into the harbor over the deepest water 110 feet clear of the new breakwater now under construction by the Department of Public Works, Canada. Lights should be left on port hand.

F. GOURDEAU,
Deputy Minister of Marine and Fisheries.

DEPARTMENT OF MARINE AND FISHERIES,
OTTOWA, CANADA, 4th November, 1901.

All bearings unless otherwise noted, are magnetic and are given from seaward, miles are nautical miles, heights are above high water, and all depths are at mean low water.

Pilots, masters or others interested are earnestly requested to send information of dangers, changes in aid to navigation, notice of new shoals or channels, errors in publications, or any other facts affecting the navigation of Canadian waters to the Chief Engineer, Department of Marine and Fisheries, Ottawa, Canada.

## MARITIME LAW.

DE FARCONNET ET AL. VS. WESTERN INS. CO.

(District Court, S. D., New York, August 3, 1901.)

JUDGMENT — CONCLUSIVENESS.—Lieblants shipped petroleum, covered by marine insurance, on board a bark which became disabled at sea. Salvage and other expenses were incurred, to pay which the ship and cargo were subsequently sold by the master. Held, in an action on the policy, that a judgment on the master's bottomry draft, pledging the ship and freight, in which the sale of the ship was held invalid, was not admissible in evidence, nor binding in any way, it being between different parties and on different evidence.

MARINE INSURANCE—LIMITATIONS OF ACTIONS—WAIVER.—Any conduct of an insurer which tends to mislead the insured and cause delay in prosecuting his claim beyond the time limited in the policy, amounts to a waiver of the condition.

Subsequent dealings with the insured, in which the insurer recognizes the continued validity of the policy, and requires further action on the part of the insured, involving labor and expense, amount to a waver of the condition in the policy limiting the time for prosecuting claims.

SAME—FORMAL ABANDONMENT—WAIVER.—Where the insured under a marine policy wrote the insurer, inquiring "whether we must make an abandonment by judicial act, or if our present letter, expressing an intent to abandon, will do?" the latter's answer ignoring the informal tender and denying any liability under the policy, excuses a delay in making the formal tender.

SAME—RISKS COVERED—GENERAL AVERAGE.—Lieblants shipped petroleum, covered by marine insurance against sea perils, on board a bark which became disabled at sea. Held, that the general average charges assessable on the oil, and for which the insurer was liable under the policy, included the decree for salvage, with costs and expenses, inward pilotage, towage, ship's new material used up in the salvage work, etc.

SAME—PETROLEUM AVERAGE.—A certificate for marine insurance contained an exception of "particular average unless vessel be stranded," etc. The policy provided that the insurer should not be liable for leakage of liquids, unless occasioned by stranding. The vessel containing the petroleum became disabled at sea, and in being towed to the nearest harbor became stranded, and pounded for half an hour on a coral reef, causing excessive d[illegible]age to the bottom. Its cargo on the first warehousing [illegible]ding the repairing of the vessel, appeared to be in g[illegible]ondition and experienced witnesses testified that the [illegible] caused by contact with sea water, detention [illegible] climate and frequent handling. Held, th[illegible] leakage was caused by stranding, within the po[illegible].

In Admiralty.

Butler, Notman, Joline & Mynderse, for lieblants.

Wing, Putnam & Burlingham, for respondent.

Brown, District Judge.

IN a recent lecture on his explorations in the Arctic Ocean and the results obtained with regard to the ocean currents on the Norwegian coast, in the northern part of the Atlantic Ocean, and in the Arctic Ocean during his voyage in the Fram and in the Michael Sars in 1900, Fridtjof Nansen declared his belief that the Northern Arctic Ocean is not to be regarded as forming part of the ocean system of the world, but as being an independent inland sea, which contains several subordinate currents which are affected by the influence exerted by the two chief currents of the Gulf Stream and the Arctic Ocean. For obtaining reliable data concerning the rate of speed at which the sea currents flow, their temperature and saltness, a most elaborate system of apparatus was made use of, which enabled the ocean currents to be investigated at any depth without sudden changes in the temperature of the water being able to affect the results obtained. In fact, so accurate are these results that Nansen's theory is attracting widespread attention in scientific circles.

## SUN'S AMPLITUDES.

The following approximate amplitudes of the Sun's rising or setting will be given each week in this column during the season of navigation. A second bearing may be taken by compass at sunset, by reversing the east bearing given for the nearest latitude, as the change in declination for a few hours makes but a slight difference in the true bearing of the sun's setting. The bearing may be taken when the sun's center is on the horizon, rising or setting. The elements which may be obtained by taking these amplitudes are the quantities known as local attraction, variation and deviation, or the total difference between compass and true, or geographical bearings.

LAKE ERIE AND S. END LAKE MICHIGAN, LAT. 42° N.

| Date. | Amplitude. | Bearing P'ts. | Bearing Comp. |
|---|---|---|---|
| Nov. 22 | E. 27° S. | = S. 5⅝ E. | = S. E. by E. ⅝ E. |
| Nov. 26 | E 29° S. | = S. 5⅜ E. | = S. E. by E. ⅜ E. |
| Nov. 29 | E. 30° S. | = S. 5⅜ E. | = S. E by E. ⅜ E. |

LAKE ONTARIO, S. END HURON AND CENTRAL PORTION LAKE MICHIGAN, LAT. 44° N.

| Date. | Amplitude. | Bearing P'ts. | Bearing Comp. |
|---|---|---|---|
| Nov. 22 | E. 28° S. | = S. 5½ E. | = S E. by E. ½ E. |
| Nov. 26 | E. 30° S. | = S. 5⅜ E. | = S E. by E. ⅜ E. |
| Nov. 29 | E. 31° S. | = S. 5¼ E. | = S. E. by E. ¼ E. |

N. END LAKES HURON AND MICHIGAN, LAT. 46° N.

| Date. | Amplitude. | Bearing P'ts. | Bearing Comp. |
|---|---|---|---|
| Nov. 22 | E. 29° S. | = S. 5⅜ E. | = S. E. by E. ⅜ E. |
| Nov. 26 | E 31° S. | = S. 5¼ E. | = S. E by E. ¼ E. |
| Nov. 29 | E. 32° S. | = S. 5⅛ E. | = S. E. by E. ⅛ E. |

LAKE SUPERIOR, LAT. 48° N.

| Date. | Amplitude. | Bearing P'ts. | Bearing Comp. |
|---|---|---|---|
| Nov. 22 | E. 31° S. | = S. 5¼ E. | = S. E. by E. ¼ E. |
| Nov. 26 | E. 32° S. | = S. 5⅛ E. | = S. E. by E. ⅛ E. |
| Nov. 29 | E. 33° S. | = S. 5 E. | = S. E. by E. |

With a compass correct magnetic, the difference between the observed and true bearing or amplitude will be the variation for the locality. Should there be any deviation on the course the vessel is heading at the time of taking the bearing, the difference between the observed and the true amplitude after the variation is applied will be the amount of deviation on that course. If the correct magnetic bearing is to the right of the compass bearing, the deviation is easterly, if to the left, the deviation is westerly.

## EASTERN FREIGHTS.

Messr. Funch, Edye & Co., New York, report the condition of the Eastern freight market as follows:

The list of fixtures plainly indicates the continued depressed state of our freight market, and as tonnage offers freely for distant loading the prospects for any improvement are still very dubious.

The Atlantic cotton charterers now appear to be pretty well supplied with tonnage, and do not show much inclination to make further commitments.

The situation from the Gulf remains the same, and no business is being done in that direction, with the exception of a few charters for timber at slightly improved rates for next year's loading:

Sail tonnage continues neglected and as is apparent by the occasional lower bids made for far-off long voyage vessels, shippers view the situation with indifference, feeling secure in the conviction that an early improvement of the market is in the highest degree impossible.

Grain for Liverpool is quoted at 2¼ cents, London 3 cents, and Glasgow 4 cents.

It has become the fashion to sneer at submarine vessels in some quarters, but English technical journals do not indulge in the practice, for they see in the growing fleet of French submarine vessels a distinct menace to English commerce. There are 29 submarine boats now, of the electric type, in France, and five of other kinds, and they are constantly increasing in numbers. Engineering says that if vessels were let loose at night in the Channel would be capable of establishing themselves in carry on operations before daylight and do incalculable damage to British commerce; it thinks that the submarine boat has increased the dangers from torpedoes tenfold.

## REPORTED BY THE LOOKOUT.

Seventeen naval vessels have been engaged for the most part during the last year, in making marine hydrographic surveys, and South Fox Island Shoals, Lake Michigan, has been surveyed by the U. S. S. Michigan, under the command of Commodore William Winder, U. S. N.

On Sunday, Nov. 10, the Lake Shore & Michigan Southern Railroad transported from Ashtabula to Pittsburg, 39,200 tons of iron ore. The ore was carried in 55 trains, handled in 24 hours. Altogether 65 locomotives were used, 35 locomotives and 15 crews being borrowed from the main line.

Ben Tillett, a noted labor leader of England, will arrive in this country November 20 as the authorized representative of the Dock Laborers and Longshoremen of Europe. He will meet the executive committee of the International Longshoremen's Association at Detroit, when it is expected that a complete amalgamation of the dock laborers and longshoremen of the world will be effected.

An English tar paid off at Malta, having only a day in which to spend the money before his ship left port, hired forty rowing boats, formed them into a procession, and seating himself comfortably in the stern of the last boat, he had himself and his forty boats rowed round and round his ship, much to the amusement of his comrades. After making the tour several times Jack paid the boat hire and then returned to duty, evidently well satisfied.

The Public Works Department at Ottawa has completed the estimates for 20-foot navigation between Georgian Bay and Lake Nipissing. The distance is 61 miles, and the estimated cost will be about $4,000,000. Minister Tarte says the exports of grain from Manitoba and the Canadian northwest will reach 100,000,000 bushels within the next few years and the only way to divert this from American channels is to construct a short route through Canada.

The comptroller of the treasury has rendered a decision that the government has no authority to pay the hospital expenses incurred by Light-keepers Shields and Macauley, after their exposure on Dec. 14, 1900, when Shields, two assistants, and his wife and niece, left Squaw Island in a small boat for the mainland. The boat capsized and the two women and one of the asistants perished from the cold. Shields and Macauley were badly frozen and required medical care for a long time.

Sir Israel Tarte, minister of public works of Canada, will submit to his cabinet a novel patented plan for the protection of navigators of the St. Lawerence river. The patent is designed to do away with the light-houses, buoys, and in fact, the entire paraphernalia for night navigation between Montreal and Quebec, and substitute a submerged electric system. The main idea is to sink an electric cable in the center of the navigable channels with power, transmitted from a power-house at Montreal and lines of colored lights at or above the waterlevel each side of the channel, the lights on one side being of a different color from those on the other side. The lights will be supported by cork buoys.

Capt. Hendrick van Schuysen, while conversing in a London restaurant, said he had been in the seafaring profession, man and boy, for 69 years, and had just passed his 84th birthday. "My father," he ended up, "was the first sailor to discover the practicability of screw propellers for steamers, instead of paddlewheels. When I was a young lad of 15 I sailed to India with my father in an old wooden brig called the Vrow Sneider, of Amsterdam, for Calcutta. We had fearful weather off the Cape of Good Hope, and, in fact, narrowly escaped foundering. One day it was blowing a gale of wind, the brig was under her main lower topsail and doing about 2 knots an hour. Suddenly a big whale crashed right into our stern. For a moment we thought all was lost; then my father gave orders to take off the after-hatch to see how much water there was in the hold. When we did so the whale's head appeared, and as fast as the water poured in through the leak in the stern the whale blew it out of the after-hatch. With the continual struggling of his tail the old brig began to go ahead, and we went into Cape Town safe and sound at the rate of 7 knots an hour." We returned to Amsterdam," said Capt. Schuysen solmenly "and shortly afterwards the Archimedes and the Rattler, the first screw steamers, were built, and proved a great success."

## GOLD MEDAL FOR STEAM TOWING MACHINE.

The announcement from Buffalo that the Shaw and Spiegle patent automatic steam towing machine, manufactured by the American Ship Windlass Co., of Providence, R. I., had been awarded the gold medal at the Pan-American Exposition was not surprising in view of the part that it has taken in developing the practice of steamers towing immense barges, and thus moving freight in great quantities on minimum of steam power-requirement and very low fuel expenditure. The manufacturers now have negotiations under way that will result in several of the machines going into Great Britain and Germany during the coming year. No project of the tow-barge kind will be undertaken in the future without the use of this machine, as the towing of big barges is impossible without it. The American Ship Windlass Company also secured at the Pan-American Exposition a silver medal for their steam winch.—Maritime Register.

## MARINE PATENTS.

686,274. Calking Device. Michael Dunn, Dennison, Ohio.

686,291. Ship's Port Hole. J. D. Hannah, Shrewsbury, England, assignor of one-half to J. Walton, Shrewsbury, England.

686,317. Yielding Guide Roller for Rudder Chains of Ships. A. May, Hamburg, Germany, assignor to C. O. Lange, Hamburg, Germany.

686,412. Life-preserver. Ernes S. Magnin, Chicago, Ill.

686,441. Capstan or Windlass. 686,490. Gang-plank. William R. Uphoff Chicago Ill.

686,557. Tackle-block. Arthur E. Taylor, Elyria, Ohio, assignor of one-half to Heman Ely, Elyria, Ohio.

686,597. Apparatus for Floating Vessels. Albert S. Debose, Cuero, Tex.

686,618. Life-preserver. Florian Krajca, Carlsruhe, Germany.

## CHART OF SANDUSKY BAY.

W. L. Fisk, Major, Corps of Engineers, U. S. Army, announces that a new chart, in colors, of Sandusky Bay has just been issued, and is now on sale at the U. S. Lake Survey Office, 33 Campau Building, Detroit, Mich., at 13 cents per copy.

While the steamer Elfin Mere, which took fire at Green Bay early Saturday morning, was not totally destroyed, her damage is sufficient to constitute a constructive total loss. The hull is practically destroyed from amidship aft, the boiler lines at the bottom of the hold, having fallen when the beams supporting it had burned away. Capt. Gunyon saved the steamer's books and papers.

THE Government of the United States has asked Denmark for a decisive answer to the United States offer to purchase the Danish West Indies. The Danish Government will not make a reply before November 30th.

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THE NEW
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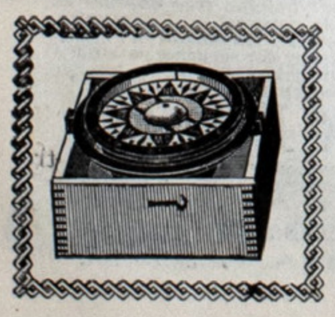

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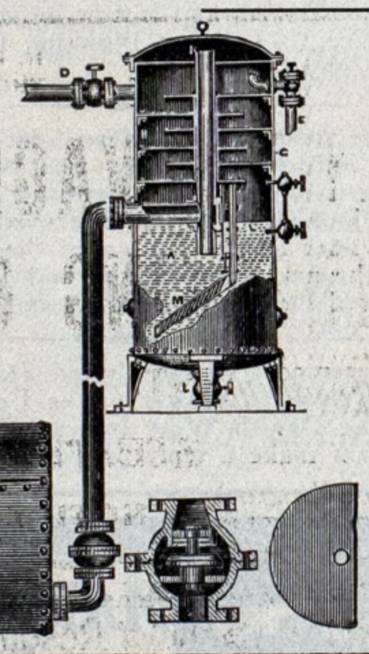

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The Republic Iron Co.'s steamers America, Brazil, Thomas Maytham and Chili.

Mitchell Transportation Co.'s steamer Hendrick S. Holden.

Minnesota Iron Co.'s steamer Presque Isle.

American Steel Barge Co.'s steamer Alex. McDougall.

Lake Michigan & Lake Superior Transportation Co.'s steamer Manitou.

Bessemer Steamship Co.'s steamers S. F. B. Morse and Douglas Houghton.

American Transportation Co.'s steamers John Harper and Alex. Nimick.

Red Star Line's steamers Robert Mills and Wyoming.

Wilson Transit Line's steamers W. D. Rees and Andrew Carnegie.

And the steamer William R. Linn.

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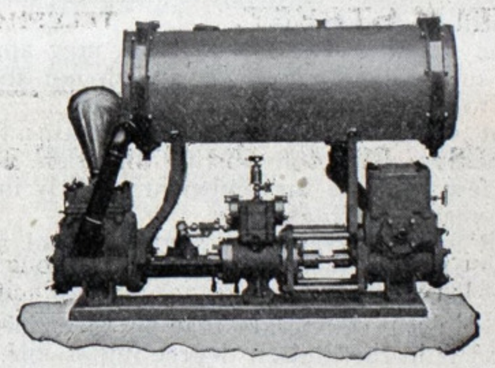

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## MOTIVE POWER FOR NAVAL GUN MOUNTING.

In discussing the choice of motive power for operating the machinery of gun mountings aboard ship—the elevating and training gear, the means of supplying the gun with ammnuition, etc.—Lient. A. Trevor Dawson, of the Vickers Company, recently spoke of the importance of avoiding any system which will cause the lower deck and compartments in a ship to become heated, especially as there is usually great difficulty in ventilating such places to make them habitable. Steam engines with their pipe leads, valves, etc., which must radiate much heat, are impracticable from this cause alone; but, in addition to this disadvantage, they are next to impossible inside a turret owing to the danger of the gunners being scalded in the possible contingency of joints being damaged or pipes broken in action. Compressed air has one great advantage in comparison with steam. No return-pipe system is required, as all machines may exhaust into the atmosphere, and by so doing materially assist in the ventilation of the turret. The noise, however, made by the free exhaust is very objectionable. Compressed air, to be economical, must be worked at a very high pressure, and a damaged pipe might, therefore, cause an explosion, with serious results. Electricity, when compared with steam and air, has many advantages. On the other hand, there are a number of serious disadvantages involved. All electric motors of reasonable weight and size for the purpose must run at a very high speed, necessitating heavy gear trains, which involve much loss of power and a great deal of noise. Difficulty, too, is frequently experienced in discovering the cause of failure which occasionally occurs either in the motor, controller, or conductors. Hydraulic power has practically none of the disadvantages enumerated for the other systems of power described. Pipes can be laid anywhere, they give out no heat, if they are damaged no explosion takes place, and the damage can easily be discovered and quickly repaired. They work practically in silence. The vertical and horizontal running of the gun is under perfect control, the dead slow movement required being obtained with the greatest facility and precision.—From Cassier's Magazine for December.

THE directors of the Lake Superior Power Co., which controls the extensive railway steel works, pulp, works, iron mining and other enterprises, directed by F.H.Clergue, sayin their annual report: "The amount of net earnings which will be realized from June 30, 1901, to June 30, 1902, upon the sale and transportation of iron ore from Helen iron mine, will alone be sufficient to pay the entire preferred stock dividend of the company during the period named. This statement is based upon earnings now being realized, without considering the increased value which will result from mixing the Helen ore with the high-grade Bessemer ore from the Josephine mine. The large earnings, therefore, which will certainly be derived during the same period of time from the steel works, government bonus, ground wood and sulphite-pulp mills, ferro-nickel works, sulphuric-acid works, water-power rentals, railway and steamship operations, timber sales, and the sales of ore from other than the Helen mine, will all be tributary either to surplus account or for dividends upon the common stock of your company."

Mutual Fault—Damages.—As a general rule, subject to qualification in special cases, where three vessels are all in fault for a collision resulting in damage to only one of them the total damage and costs should be equally divided between all of them; but where one of them, other than the damaged vessel, although not so related to or connected with the latter as to be a mere inert, passive or helpless instrument, without accountability for the movements or signals of the latter, nor her mere servant, but a free agent, not bound to obey the directions of the latter, has been induced by the latter to do the precise thing which constitutes her fault, the share of the damage and costs which she would otherwise be obliged to pay must be borne by the damaged vessel causing her to commit such fault. The Maling, 110 Fed. Rep. (U. S.) 227.

Capt. Thomas Higgins, aged 65 years, died at the hospital in Alpena, Mich., last Saturday, of typhoid pneumonia. The deceased, who was a widower, leaves a family of five daughters at Toledo. Miss Emma was at her father's bedside when he passed away.

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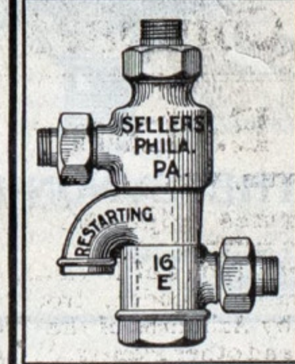

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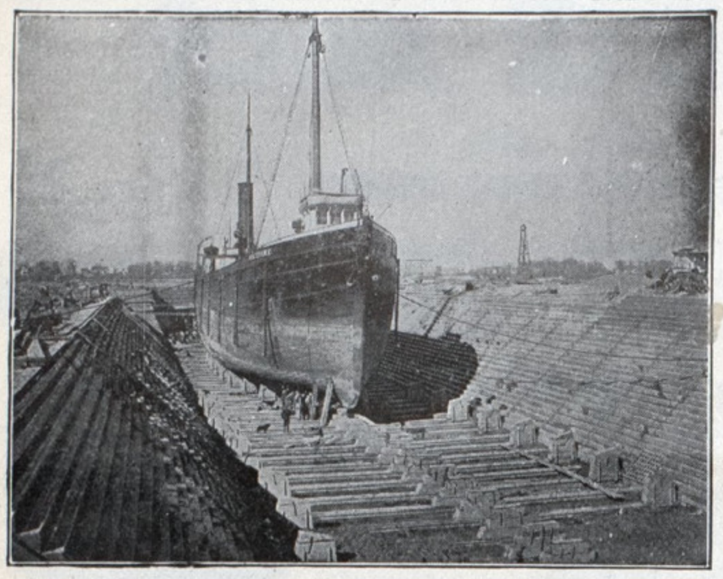

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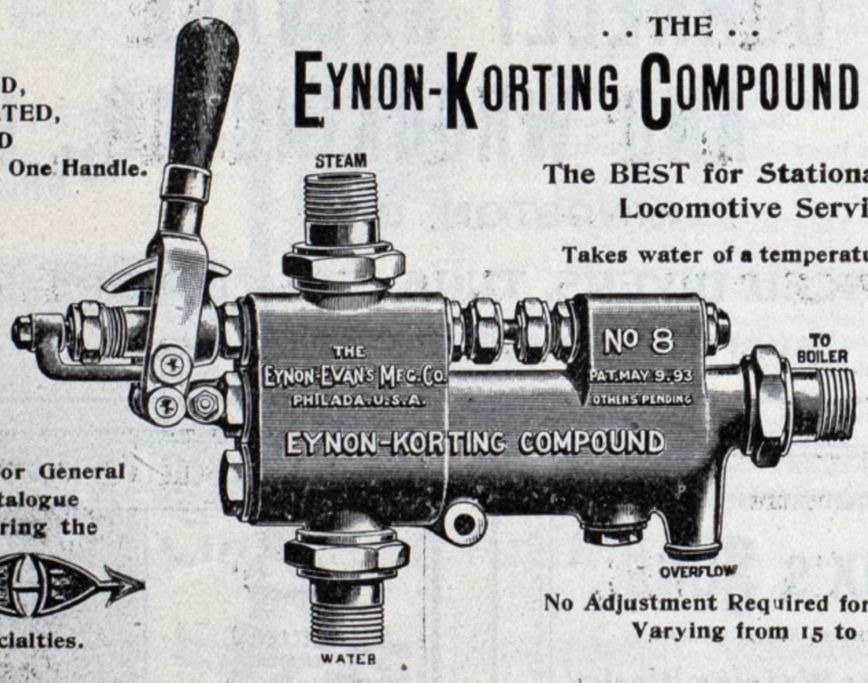


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